

Mr. Thomas Saviello
Manager, Environment, Health & Safety
International Paper Company
Androscoggin Mill, Riley Road
Jay, ME. 04239

July 25, 2005

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit ME0001937
Maine Waste Discharge License (WDL) Application W000623-5N-F-R
Revised Proposed Draft Permit/License

Dear Mr. Saviello:

To conform with regulations associated with the program, the Department is required to issue all proposed draft MEPDES permits for a 30-day comment period.

On May 13, 2005, the Department issued a proposed draft MEPDES permit for the International Paper Company (IP) mill in Jay, Maine for a formal 30-day comment period. The Department received a number of comments on the draft permit from interested parties (including IP) as well as public comments voiced by said parties at a Maine Board of Environmental Protection meeting held on June 7, 2005. The Department has considered the comments received and as a result, have made significant revisions to the draft permit that warrant another 30-day comment period. Enclosed is a revised proposed draft MEPDES permit and Maine WDL which the Department proposes to issue as a final document after opportunity for your review and comment. By transmittal of this letter you are provided with an opportunity to comment on the revised proposed draft permit/license and its conditions (special conditions specific to this permit are enclosed; standard conditions applicable to all permits are available upon request). If it contains errors or does not accurately reflect present or proposed conditions, please respond to this Department so that changes can be considered. Once all the comments are received, the Department will formally response to the comments (including comments received on the May 13, 2005 draft document) as part of the final permit document.

To expedite your review of the changes to the May 13, 2005 proposed draft document, we have highlighted new or replacement language in yellow and utilized the ~~strike through~~ format for language we propose to delete in the final permit. The most significant change to the May 13th draft permit is the establishment of a ten-year schedule of compliance for total suspended solids (TSS) and phosphorus. Maine law 38 M.R.S.A. §414(2) *Schedules of Compliance*, authorizes the Department to establish schedules of compliance for water quality based limitations within the terms and conditions of a license/permit. The schedule includes interim and final dates for attainment of specific standards and must be as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to attain those standards. See Special Condition N of the draft permit for the terms and conditions of the schedule of compliance.

By copy of this letter, the Department is requesting comments on the revised proposed draft permit from various state and federal agencies, as required by our new regulations, and sent electronically to other parties who have notified the Department of their interest in this matter or participated in public meetings, stakeholder meetings or other meetings that may or may not have affected the terms and conditions of the permit. Hard copies of the draft permit and or the attachments to the permit or Fact Sheet may be obtained by contacting Cynthia Oakes or Mary Breton of the Department at 287-3901. These and other documents may also be viewed on the Department's website found at www.maine.gov/dep/blwq/topic/gip/index.htm.

All comments must be received in the Department of Environmental Protection office on or before the close of business on **Thursday, August 25, 2005**. Failure to submit comments in a timely fashion will result in the final document being issued as drafted. Comments in writing should be submitted to my attention at the following address:

Maine Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Resource Regulation
17 State House Station
Augusta, Maine 04333

If you have any questions regarding this matter, please feel free to call me at 287-7693.

Sincerely,

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality

Enc.

cc: Beth DeHaas, Dennis Merrill, David Courtemanch, DEP/CMRO
David Webster, USEPA Norm Dube, ASC
Steve Timpano, Charles Todd, Maine IF&W Gordon Russell, USF&WS

Electronic copies w/o attachments include but not limited to:

Senator Cowger, Senator Martin, Senator Nutting
Rep. Koffman Rep. Saviello, Richard Davies, Gov's Office
Dana Murch, Andrew Fisk, DEP/CMRO Jerry Reid, AAG
Jennie Bridge, Stephen Silva, Neil Handler, William Wandle, USEPA
Jeff Andrews, Harry Stewart, NH DES
Nehl Aldridge, IP David Bishop, Fraser Paper Al Wiley FPL
Ronald Holmes, Wausau Scott Beal, Domtar Cathy Johnson, NRCM
Steven Hinchman, CLF Naomi Schalit, Maine Rivers Molly Saunders, ALA
Kent Mitchell, Livermore Greg Trundy, Rumford-Mexico SD
Robert Gunderson, Bethel Michael Gentile, Preti Flaherty Shiloh Ring, Jay

IN THE MATTER OF

INTERNATIONAL PAPER COMPANY)	MAINE POLLUTANT DISCHARGE
JAY, FRANKLIN COUNTY, MAINE)	ELIMINATION SYSTEM PERMIT
PULP & PAPER MANUFACTURING FACILITY)	AND
ME0001937)	WASTE DISCHARGE LICENSE
W000623-5N-F-R)	RENEWAL
APPROVAL		

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq., and Maine Law 38 M.R.S.A., Section 414-A et. seq., and all applicable regulations, the Department of Environmental Protection (Department hereinafter) has considered the application of INTERNATIONAL PAPER COMPANY (IP hereinafter), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

IP has filed an application with the Department to renew State Waste Discharge License (WDL) #W000623-5N-C-R that was issued on May 1, 1994. It is noted the 5/1/94 WDL was subsequently modified on October 16, 1998, to incorporate new color, dioxin and furan limitations and again on June 6, 1999, to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP). All three licensing actions expired on May 1, 1999.

The IP mill in Jay, Maine manufactures bleached kraft pulp and fine coated and specialty papers. IP has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and WDL to discharge up to a daily maximum of 51 million gallons per day (MGD) of treated process waste waters, treated sanitary waste waters, contact and non-contact cooling waters, treated landfill leachate, treated stormwater runoff and general housekeeping waste waters associated with a kraft pulp and papermaking facility to the Androscoggin River in Jay, Maine. The IP waste water treatment facility also treats waste water from three other industrial facilities, the Wausau-Mosinee paper facility, Specialty Minerals and Androscoggin Energy. IP maintains a multi-sector permit from the U. S. Environmental Protection Agency (EPA) for the discharge of storm water. The mill produced an average of 1,840 tons per day (TPD) of fine coated and specialty papers for the period calendar years 2001 – 2003 inclusively. This value is considered to be representative of normal production and is therefore being used to derive applicable production (technology) based limitations in this permitting action.

PERMIT SUMMARY

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency EPA to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From that point forward, the program has been referred to as the MEPDES program and will utilize a permit number of #ME0001937 (same as the NPDES permit) as the primary reference number for IP's MEPDES permit. It is noted the effective NPDES permit issued by the EPA on May 1, 1992, will be replaced by the MEPDES permit upon the effective date of the permit and all terms and conditions of the NPDES permit as of said date will be null and void.

This permit is significantly different than the effective NPDES permit issued by the EPA in 1992 and the effective WDL issued by the State of Maine in 1994 (subsequently modified in 1998 and 1999) due to new regulations promulgated by the EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W000632-44-C-R dated May 1, 1994, WDL Modifications WDL #W000632-5N-D-M dated October 16, 1998, and #W000632-5N-E-M dated June 6, 1999:

1. The daily maximum flow limit for Outfall #001.
- ~~2. The daily maximum temperature limit for Outfall #001~~
2. The technology based pH range limitation for Outfall #001.
3. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plants, Outfall #100 and #200, internal waste streams for the mill.
4. Screening and surveillance level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing for Outfall #001.
5. The monthly average water quality mass and concentrations limits for aluminum for Outfall #001.

This permit is different from WDL #W000632-44-C-R dated May 1, 1994, WDL Modifications WDL #W000632-5N-D-M dated October 16, 1998, and #W000632-5N-E-M dated June 6, 1999, in that it:

6. Establishes a more stringent quarterly average technology based color limit of 120 lbs/ton of unbleached pulp produced for Outfall #001.

PERMIT SUMMARY (cont'd)

7. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.
8. Establishes monthly average and daily maximum technology based mass limitations for chemical oxygen demand (COD) for Outfall #001.
9. Eliminates the monthly average water quality based mass and concentrations limits for lead for Outfall #001.
10. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plants, Outfall #100 and #200.
11. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plants, Outfall #100 and #200.
12. Establishes a weekly average and daily maximum river temperature increase reporting requirement.
13. Establishes a requirement for the permittee to maintain and annually update an operations and maintenance (O&M) plan for the waste water treatment facility.
14. Establishes new seasonal water quality based mass limitations for biochemical oxygen demand (BOD) and total suspended solids (TSS).
15. Establishes summertime (June 1 – September 30) water quality based mass limitations for total phosphorus and ortho-phosphorus.
16. Establishes a requirement to participate in ambient water quality monitoring of Gulf Island Pond during the summer months.
17. Establishes a requirement to inject oxygen into the Androscoggin River at Lower Narrows.
18. Establishes a requirement to inject additional oxygen into the Androscoggin River at Upper Narrows.
19. Establishes a ten-year schedule of compliance for final water quality based mass limitations for TSS, total phosphorus and ortho-phosphorus and a five-year schedule of compliance for the additional oxygen injection requirements.
20. Establishes a daily maximum temperature limitation for Outfall #001.

CONCLUSIONS

BASED on the findings in the attached **REVISED PROPOSED DRAFT** Fact Sheet dated **July 25, 2005 (original draft dated 5/13/05)**, and subject to the terms and conditions contained herein, the Department makes the following CONCLUSIONS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.
2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.
3. The provisions of the State's antidegradation policy, 38 M.R.S.A., Section 464(4)(F), will be met, in that:
 - (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;
 - (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;
 - (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;
 - (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and
 - (e) Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.
4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the above noted application of the INTERNATIONAL PAPER COMPANY, to discharge up to a daily maximum of 51 million gallons per day (MGD) of treated process waste waters, treated sanitary waste waters, contact and non-contact cooling waters, treated landfill leachate, treated stormwater runoff and general housekeeping waste waters associated with a kraft pulp and papermaking facility to the Androscoggin River in Jay, Maine, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. "Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits," revised July 1, 2002, copy attached.
2. The attached Special Conditions, including effluent limitations and monitoring requirements.
3. All terms and conditions of WDL #W000632-44-C-R dated May 1, 1994, WDL Modifications WDL #W000632-5N-D-M dated October 16, 1998, and #W000632-5N-E-M dated June 6, 1999, remain in effect through midnight August 31, 2005. Beginning September 1, 2005, the terms and conditions of this permit become effective. This permit becomes effective on the date of signature below and expires at midnight five years thereafter. from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE, THIS ____ DAY OF _____, 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN GALLAGHER, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application _____ January 12, 1999 _____.

Date of application acceptance _____ January 21, 1999 _____.

Date filed with Board of Environmental Protection _____

This order prepared by GREGG WOOD, BUREAU OF LAND AND WATER QUALITY

IPrevised proposeddraft72505

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning with the effective date of this permit and lasting through permit expiration, the permittee is authorized to discharge secondary treated process waste waters, treated sanitary wastewaters, treated landfill leachate, general housekeeping wastewaters, storm water, contact and non-contact cooling waters from **Outfall #001** and bleach plant effluents (internal waste streams **consisting of three points, the 15, 35 and 45 stages in each bleach plant**) from **Outfall #100 and Outfall #200**, to the Androscoggin River. Such discharges shall be limited and monitored by the permittee as specified below. The italicized numeric values in brackets in the table below and the tables that follow are not limitations but are code numbers used by Department personnel to code Discharge Monitoring Reports (DMR's).

OUTFALL #001A & #001B⁽¹⁾ – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]	Report MGD [03]	---	51 MGD [03]	---	---	---	Continuous [99/99]	Recorder [RC]
Beginning Sept. 1, 2005 BOD₅ [00310] (June 1 – Sept. 30)	7,400 #/day	11,100 #/day [26]	13,875 #/day	---	---	---	1/Day [01/01]	Composite
(Oct 1 – May 31)	17,700 #/day [26]		34,050 #/day [26]	---	---	---	5/Week [05/07]	Composite [24]

Footnotes:

- Outfall #001 - Outfall 001A is a 36" diameter pipe which is normally utilized to convey the treated process wastewaters from the wastewater treatment plant from the mill to the Androscoggin River. During periods of high storm water runoff events due to precipitation or snow melt events, most common in the spring and fall, discharges from Outfall 001A are hydraulically limited. As a result, the wastewater treatment facility experiences hydraulic limitations and best practicable treatment of the wastewater is jeopardized. This permit authorizes the facility to discharge from Outfall 001B, a **24"** diameter pipe located adjacent to Outfall 001A. The discharges from Outfall 001B will receive the same degree of treatment as discharges from Outfall 001A and all flows discharged through the secondary outfall are measured and included in analysis for all effluent samples and calculations for compliance purpose.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & #001B – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
Begin upon issuance <u>TSS</u> [00530] (June 1 – Sept 30)	12,000 #/day	---	22,300 #/day	---	---	---	1/Day [01/01]	Composite [24]
	12,000 #/day ⁽²⁾	---	---	---	---	---	1/Day [01/01]	Calculate [CA]
	25,000 #/day	---	44,600 #/day	---	---	---	5/Week [05/07]	Composite [24]
	17,557 #/day ⁽³⁾ [26]	---	---	---	---	---	1/Year [01/YR]	Calculate [CA]
Beginning June 1, 2010 <u>TSS</u> [00530] (June 1 – Sept 30)	12,000 #/day	---	22,300 #/day	---	---	---	1/Day [01/01]	Composite [24]
	11,060 #/day ⁽²⁾	---	---	---	---	---	1/Day [01/01]	Calculate [CA]
	25,000 #/day	---	44,600 #/day	---	---	---	5/Week [05/07]	Composite [24]
	16,000 #/day ⁽³⁾ [26]	---	---	---	---	---	1/Year [01/YR]	Calculate [CA]
Beginning June 1, 2015 <u>TSS</u> [00530] (June 1 – Sept 30)	12,000 #/day	---	22,300 #/day	---	---	---	1/Day [01/01]	Composite [24]
	10,000 #/day ⁽²⁾	---	---	---	---	---	1/Day [01/01]	Calculate [CA]
	25,000 #/day	---	44,600 #/day	---	---	---	5/Week [05/07]	Composite [24]
	14,738 #/day ⁽³⁾ [26]	---	---	---	---	---	1/Year [01/YR]	Calculate [CA]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & #001B – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Total Phosphorus [00665] (June 1 – September 30) Begin upon issuance Beginning June 1, 2010 Beginning June 1, 2015	193 #/day	Report #/day	Report #/day	Report mg/L	Report mg/L	Report mg/L	3/Week	Composite
	160 #/day	Report #/day	Report #/day	Report mg/L	Report mg/L	Report mg/L	3/Week	Composite
	130 #/day [26]	Report #/day [26]	Report #/day [26]	Report mg/L [19]	Report mg/L [19]	Report mg/L [19]	3/Week [03/07]	Composite [24]
Ortho-phosphorus [70507] (June 1 – September 30) Begin upon issuance Beginning June 1, 2010 Beginning June 1, 2015	44 #/day	Report #/day	Report #/day	Report mg/L	Report mg/L	Report mg/L	3/Week	Composite
	33 #/day	Report #/day	Report #/day	Report mg/L	Report mg/L	Report mg/L	3/Week	Composite
	22 #/day [26]	Report #/day [26]	Report #/day [26]	Report mg/L [19]	Report mg/L [19]	Report mg/L [19]	3/Week [03/07]	Composite [24]
Oxygen Injection ⁽⁴⁾ (June 1 – Sept. 30) Begin upon issuance Beginning June 1, 2010	---	---	Report #/day ⁽⁵⁾	---	---	---	1/Day	Record
	---	---	39,900 #/day ⁽⁶⁾	---	---	---	1/Day	Record
	---	---	24,891 #/day ⁽⁷⁾	---	---	---	1/Day[01/01]	Record [RC]

Footnotes:

(2) 60–day rolling average defined as the average of sixty consecutive daily TSS discharges between June 1st and September 30th to be reported in the July, August, and September DMRs.

(3) Annual average defined as January 1st – December 31st of each year **beginning calendar year 2006**.

(4) Injected at Upper and Lower Narrows. See Special Condition K, *Gulf Island Pond Oxygen Injection Operation*.

(5) See Special Condition K, *Gulf Island Pond Oxygen Injection Operations* of this permit.

(6) At Upper Narrows. Assumes IP injects 24,891 lbs (assumes 33% efficiency) at Lower Narrows or an equivalent amount given an alternate efficiency.

(7) At Lower Narrows. Assumes IP injects 39,900 lbs (assumes 33% efficiency) at Upper Narrows or an equivalent amount given an alternate efficiency.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & #001B – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Temperature [00011] June 1 – Sept. 30 Oct. 1 – May 31	---	---	---	---	100°F [15] Report °F [15]	1/Day [01/01] 1/Week [01/07]	Measure [MS] Measure [MS]
Adsorbable Organic Halogen ⁽⁸⁾ (AOX) [03594]	1,396 #/day [26]	2,130 #/day [26]	---	---	---	3/Week [03/07]	Composite [24]
Chemical Oxygen Demand(COD) [81017]	51 kg/kkg [2C]	75 kg/kkg [2C]	---	---	---	1/Day [01/01]	Composite [24]
pH (Std. Unit) [00400]	---	---	---	---	5.0 – 9.0 SU [12]	1/Day [0101]	Grab ⁽⁹⁾ [GR]
Color ⁽¹⁰⁾ [00084]	120 lbs/ton [42]	---	---	---	---	3/Week [03/07]	Calculate [CA]
River Temperature Increase (June 1 – September 30) Beginning June 1, 2006	---	---	---	Report °F ⁽¹¹⁾ [15]	Report °F ⁽⁹⁾ [15]	1/Day [01/01]	Measure [MS]
Aluminum (Total) [01092]	784 #/day [26]	---	2,766 ug/L [28]	---	---	1/Quarter [01/90]	Composite [24]

Footnotes:

See page11 of this permit.

SPECIAL CONDITIONS

OUTFALL #001A & #001B – Secondary treated waste waters (cont'd)

SURVEILLANCE LEVEL TESTING – Beginning upon issuance of this permit and lasting through 12 months prior to permit expiration.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Whole Effluent Toxicity (WET) ⁽¹²⁾						
<u>A-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TDA3B]	---	---	---	Report% [23]	1/Year [01/YR]	Composite [24]
<i>Pimephales promelas</i> [TDA6C]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
<u>C-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TBP3B]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
<i>Pimephales promelas</i> [TBP6C]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Chemical Specific ⁽¹³⁾	---	---	---	Report ug/L[28]	1/Year [01/YR]	Composite/ Grab [24/GR]

SCREENING LEVEL TESTING – Beginning twelve months prior to the expiration date of the permit.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Whole Effluent Toxicity (WET) ⁽¹²⁾						
<u>A-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TDA3B]	---	---	---	Report % [23]	1/Quarter [01/90]	Composite [24]
<i>Salvelinus fontinalis</i> [TDA6F]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<i>Pimephales promelas</i> [TDA6C]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<u>C-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TBP3B]	---	---	---	Report % [23]	1/Quarter [01/90]	Composite [24]
<i>Salvelinus fontinalis</i> [TBQ6F]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<i>Pimephales promelas</i> [TBP6C]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Chemical Specific ⁽¹³⁾	---	---	---	Report ug/L[28]	1/Quarter [01/90]	Composite/ Grab[24/GR]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001A & #001B

Footnotes:

Effluent sampling for Outfall #001 shall be sampled for all parameters from the effluent collection box (after secondary clarification) on a year-round basis.

Sampling – Sampling and analysis must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services.

- (8) **AOX** - The analytical method to be used to determine adsorbable organic halogens shall be EPA Method 1650 for which a ML (Minimum Level) of 20 ug/l shall be attained. The ML is defined as the level at which the analytical system gives recognizable signals and an acceptable calibration point. The mass discharged shall be based on air-dried **metric** tons of brown stock entering the bleach plant at the stage where chlorine or chlorine based compounds are first added.
- (9) **pH** - For Outfall #001, criteria found at Department rule Chapter 525 (4)(VIII)(A) (1&2) regarding pH limitations under continuous monitoring is applicable to the discharges when continuous monitoring is utilized.
- (10) **Color** – The limitation is a calendar quarterly average limitation. Quarterly results shall reported in the monthly DMR's for the months of March, June, September and December of each calendar year. The permittee shall monitor the true color (at a pH of 7.6 S.U) in the effluent from Outfall #001 at a minimum of three (3) times per week. See Special Condition G, *Color*, of this permit for reporting requirements. The calculated mass discharged, expressed as **lbs/ton pounds per air dried ton** of unbleached pulp produced entering the bleach plant. A color pollution unit is equivalent to a platinum cobalt color unit as described in NCASI Technical Document #253. A pound of color is defined as the number of color pollution units multiplied by the volume of effluent discharged in million gallons per day multiplied by 8.34.
- (11) **River Temperature Increase** – Between June 1 and September 30 (inclusive) of each year beginning June 1, 2006, the permittee shall report the weekly rolling average and daily maximum increase in the ambient river temperature caused by the discharge from the mill. See Special Condition H, *River Temperature Increase*, of this permit.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001A & #001B

Footnotes:

- (12) **WET** - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions set at levels to bracket the acute and chronic critical water quality thresholds of 4.7%), which provides a point estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points.

Beginning the effective date of this permit and lasting through 12 months prior permit expiration, the permittee shall initiate surveillance level WET testing at a frequency of 1/Year on the water flea (*Ceriodaphnia dubia*) and on the fathead minnow (*Pimephales promelas*). Tests shall be conducted in a different calendar quarter of each year such that a WET test is conducted in all four calendar quarters during the first four years of the permit. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

Beginning twelve months prior to the expiration date of the permit, the permittee shall initiate screening level WET tests at a frequency of 1/Quarter (four consecutive calendar quarters). Testing shall be conducted on the water flea (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) in two of the four calendar quarters and conducted on the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*) in the remaining two of the four calendar quarters. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

Toxicity tests must be conducted by an experienced laboratory approved by the Department. The laboratory must follow procedures as described in the following U.S.E.P.A. methods manuals.

- a. Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013.
- b. Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

The permittee is also required to analyze the effluent for the parameters specified in the analytical chemistry on the form in Attachment A of this permit every time a WET test is performed for compliance with this permit. Analytical chemistry is not required for WET tests conducted for a toxicity identification evaluation (TIE), toxicity reduction evaluation (TRE) or for other investigative purposes.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001A & 001B

Footnotes:

- (13) **Priority Pollutants** (chemical specific testing under Department Rule Chapter 530.5) are those listed by the USEPA pursuant to Section 307(a) of the Clean Water Act and published in 40 CFR Part 122, Appendix D, Tables II and III.

Beginning the effective date of this permit and lasting through 12 months prior to permit expiration, surveillance level chemical specific testing shall be conducted at a frequency of once per year. **Beginning 12 months prior to the expiration date of the** permit, screening level chemical specific testing shall be conducted at a frequency of four per year (four consecutive calendar quarters). Chemical specific testing shall be conducted on samples collected at the same time as those collected for surveillance or screening level whole effluent toxicity tests, where applicable. Chemical specific testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. See Attachment F of the Fact Sheet of this permit for a list of Department reporting limits. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal. For the purposes of DMR reporting, enter a "NODI-9" for *no testing done this monitoring period* or "1" for *yes, testing done this monitoring period*.

All mercury sampling **required by this permit or required to determine compliance with interim limitations established pursuant to Department rule Chapter 519**, shall be conducted in accordance with EPA's "clean sampling techniques" found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analysis shall be conducted in accordance with EPA Method 1631, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry.

SPECIAL CONDITIONS
OUTFALL #100 (Bleach Plant A)

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
Flow [50050]	Report MGD [03]	Report MGD [03]	---	---	1/Day [01/01]	Calculate [CA]
2,3,7,8 TCDD (Dioxin) ⁽¹⁴⁾ [34675]	---	---	---	<10 pg/L ⁽¹⁵⁾ [3L]	1/Year [01/YR]	Composite [24]
2,3,7,8 TCDF (Furan) ⁽¹⁴⁾ [38691]	---	---	---	<10 pg/L ⁽¹⁵⁾ [3L]	1/Year [01/YR]	Composite [24]
Trichlorosyringol ⁽¹⁶⁾ [73054]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichlorocatechol ⁽¹⁶⁾ [73037]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,,6- Trichlorocatechol ⁽¹⁶⁾ [51024]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichloroguaiacol ⁽¹⁶⁾ [61024]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,6-Trichloroguaiacol ⁽¹⁶⁾ [51022]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
4,5,6-Trichloroguaiacol ⁽¹⁶⁾ [73088]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,4,5-Trichlorophenol ⁽¹⁶⁾ [61023]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,4,6-Trichlorophenol ⁽¹⁶⁾ [34621]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachlorocatechol ⁽¹⁶⁾ [79850]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachloroguaiacol ⁽¹⁶⁾ [73047]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,3,4,6-Tetrachlorophenol ⁽¹⁶⁾ [77770]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Pentachlorophenol ⁽¹⁶⁾ [39032]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Chloroform ⁽¹⁷⁾ [32106]	9.3 #/day	15.5 #/day	---	---	1/Week [01/07]	Grab [24]

SPECIAL CONDITIONS
OUTFALL #200 (Bleach Plant B)

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Flow [50050]	Report MGD [03]	Report MGD [03]	---	---	1/Day [01/01]	Calculate [CA]
2,3,7,8 TCDD (Dioxin) ⁽¹⁴⁾ [34675]	---	---	---	<10 pg/L ⁽¹⁵⁾ [3L]	1/Year [01/YR]	Composite [24]
2,3,7,8 TCDF (Furan) ⁽¹⁴⁾ [38691]	---	---	---	<10 pg/L ⁽¹⁵⁾ [3L]	1/Year [01/YR]	Composite [24]
Trichlorosyringol ⁽¹⁶⁾ [73054]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichlorocatechol ⁽¹⁶⁾ [73037]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,,6- Trichlorocatechol ⁽¹⁶⁾ [51024]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichloroguaiacol ⁽¹⁶⁾ [61024]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
3,4,6-Trichloroguaiacol ⁽¹⁶⁾ [51022]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
4,5,6-Trichloroguaiacol ⁽¹⁶⁾ [73088]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,4,5-Trichlorophenol ⁽¹⁶⁾ [61023]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,4,6-Trichlorophenol ⁽¹⁶⁾ [34621]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachlorocatechol ⁽¹⁶⁾ [79850]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachloroguaiacol ⁽¹⁶⁾ [73047]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
2,3,4,6-Tetrachlorophenol ⁽¹⁶⁾ [77770]	---	---	---	<2.5 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Pentachlorophenol ⁽¹⁶⁾ [39032]	---	---	---	<5.0 ug/L ⁽¹⁵⁾ [28]	1/Month [01/30]	Composite [24]
Chloroform ⁽¹⁷⁾ [32106]	9.3 #/day	15.5 #/day	---	---	1/Week [01/07]	Grab [24]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #100 & #200

For Outfall #100 and #200 (bleach plants) sampling for all parameters shall be collected from the seal tank filtrates. Any change in sampling location(s) must be reviewed and approved by the Department in writing.

- (14) **2,3,7,8 TCDD (Dioxin) & 2,3,7,8 TCDF (Furan)** – The analytical method to be used to determine the concentrations of dioxin and furan shall be EPA Method 1613. See Special Condition J, *Dioxin/Furan Certification*, of this permit for annual certification requirements.
- (15) **Minimum Levels (ML's)** - The limitations established in this permitting action for dioxin, furan and the 12 chlorinated phenolic compounds are equivalent to the ML's established for EPA Methods 1613 and 1653 respectively. Compliance will be based on the ML's. For the purposes of reporting test results on the monthly DMR, the following format shall be adhered to:

Detectable results - All detectable analytical test results shall be reported to the Department including results which are detected below the respective ML.

Non-detectable results - If the analytical test result is below the respective ML, the concentration result shall be reported as <X where X is the detection level achieved by the laboratory for each respective parameter.

- (16) **12 Chlorinated phenolic compounds** - The analytical method to be used to determine the concentrations of these compounds shall be EPA Method 1653.
- (17) **Chloroform** - The preferred analytical method to be used for chloroform is EPA Method 1624B for which a ML of 20 ug/l shall be attained. Other approved EPA methods are 601 and 624, and Standard Method 6210B and 6230B. The permittee must collect separate grab samples from the acid and alkaline bleach plant filtrates for chloroform analysis. Samples to be analyzed for chloroform may be taken over a period not to exceed 32 hours where a minimum of six (6) grab samples are collected, each grab sample being at least three (3) hours apart but no more than 16 hours apart. The monthly average and daily maximum limitations of 9.3 lbs/day and 15.5 lbs/day are limits for Bleach Plants A & B collectively.

SPECIAL CONDITIONS

B. NARRATIVE EFFLUENT LIMITATIONS

1. The effluent shall not contain a visible oil sheen, foam, or floating solids which would impair the usages designated by the classification of the receiving waters.
2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life; or which would impair the usages designated by the classification of the receiving waters.
3. The discharge shall not impart color, taste, turbidity, toxicity, radioactivity or other properties which cause those waters to be unsuitable for the designated uses and characteristics ascribed to their class.
4. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

~~5. The permittee shall not use chlorophenolic containing biocides.~~

C. TREATMENT PLANT OPERATOR

The waste water treatment facility must be operated ~~by~~ under the direction of a person holding a minimum of a **Grade V** certificate [or Maine Professional Engineer (PE) certificate] pursuant to Title 32 M.R.S.A., Section 4171 et seq. All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

D. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee shall notify the Department of the following:

1. Any substantial change (realized or anticipated) in the volume or character of pollutants being introduced into the waste water collection and treatment system.
2. For the purposes of this section, adequate notice shall include information on:
 - a. The quality and quantity of waste water introduced to the waste water collection and treatment system; and
 - b. Any anticipated change in the quality and quantity of the waste water to be discharged from the treatment system.

SPECIAL CONDITIONS

E. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls specified in this permit. Discharges of waste water from any other point source are not authorized under this permit, but shall be reported in accordance with Standards Condition B(5)(Bypass) of this permit.

F. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and **postmarked on or before the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMR's are received by the Department on or before the fifteenth (15th) day of the month** following the completed reporting period. A signed copy of the DMR and all other reports required herein shall be submitted to the following addresses:

Maine Department of Environmental Protection
Central Maine Regional Office
Bureau of Land & Water Quality
Division of Engineering, Compliance & Technical Assistance
State House Station #17
Augusta, ME. 04333

G. COLOR

The permittee is required to report the daily average color discharged for a calendar quarter expressed as pounds of color per ton of unbleached pulp produced. Supporting calculations, in **the** a format **similar to the format** illustrated below must be retained on-site for at least three (3) years and made available to Department or EPA personnel upon request.

Quarter	#001 Flow	Color Conc	Mass	Unbleached
<u>Sample Date</u>	<u>(mgd)</u>	<u>(cpu)</u>	<u>(lbs/day)</u>	<u>Pulp Production</u>
xx/xx/xx	31	310	80,147	1,100
xx/xx/xx	30	340	85,069	1,050
.....				
xx/xx/xx	31	315	<u>81,440</u>	<u>1,010</u>
Quarterly Average			X=82,219	X=1,053

Quarterly Average Mass per Ton = $82,219 / 1,053 = 78$ lbs color/ton

SPECIAL CONDITIONS

H. RIVER TEMPERATURE INCREASE

On or before December 31, 2005, [PCS Code ____] the permittee shall submit to the Department for review and approval, a scope of work and schedule for the implementation of a methodology/mechanism to demonstration compliance with Department Rule, Chapter 582, *Regulation Relating To Temperature*.

On or before June 1, 2006, [PCS Code ____] the permittee shall have the methodology/mechanism in place and/or fully operational to demonstration compliance with Department Rule, Chapter 582, *Regulation Relating To Temperature*.

I. OPERATION & MAINTENANCE (O&M) PLAN

On or before November 15, 2005, the permittee shall submit to the Department for review and approval, a current written comprehensive Operation & Maintenance (O&M) Plan. ~~The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.~~ The plan shall provide a systematic approach by which the permittee shall operate the facility at maximum pollutant removal efficiency. The plan shall give consideration to process control objectives such as, but not limited to, solids levels, settling rates, dissolved oxygen levels, returns sludge rates, waste sludge rates, unit loading rates and process control testing and measurements. Particular emphasis will be given to real-time monitoring and control of phosphorus entering, added to and leaving the treatment system. Initial recommended changes and improvements in the operation and or maintenance of the waste water treatment facility will be completed on a schedule contained in the approved plan.

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee shall evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the waste water treatment facility to ensure that it is up-to-date. The O&M Plan shall be kept on-site at all times and made available to Department and EPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee shall submit the updated O&M Plan to their Department inspector for review and comment.

SPECIAL CONDITION

J. DIOXIN/FURAN CERTIFICATION

In lieu of 1/Month monitoring of the bleach plant waste stream for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) (40 CFR Part 430), **by December 31 of each calendar year (PCS Code ____)**, the permittee shall sample (1Year) and report the results for said parameters and provide the Department with a certification stating:

- a. Elemental chlorine **gas** or hypochlorite was not used in the bleaching of pulp.
- b. The chlorine dioxide (ClO₂) generating plant has been operated in a manner which minimizes or eliminates byproduct elemental chlorine generation per the manufacturers/suppliers recommendations.
- c. **Purchasing procedures are in place for the procurement of defoamers or other additives without elevated levels of known dioxin precursors. have not been utilized.**
- d. **Process Fundamental design** changes that affect the ClO₂ plant and/or bleach plant operation have been reported to the Department and said reports explained the reason(s) for the change and any possible adverse consequences if any.
- e. **ClO₂ production or consumption based on a per ton of pulp basis has been approximately constant or has decreased.**

K. GULF ISLAND POND OXYGEN INJECTION OPERATION

Beginning September 1, 2005 on the effective date of this permit, IP, either individually or in combination with Florida Power Light & Energy (FPLE), Rumford Paper Company and Fraser Paper NH LLC shall operate the Gulf Island Pond Oxygenation Project (GIPOP) located at Upper Narrows in accordance with the following:

Begin GIPOP at Upper Narrows operation when the 3-day average temperature⁽¹⁾ at the Turner Bridge is greater than 18°C in June.

Oxygen Injection Thresholds	% Normal Capacity	Oxygen Injection (lb/day)
$Q^{(2)} > 3500 \text{ cfs}$	Idle	8,000
$T < 24^{\circ}\text{C} \ \& \ 3,000 < Q \leq 3,500$	50%	36,500
$T < 24^{\circ}\text{C} \ \& \ 2,500 < Q \leq 3,000$	75%	54,750
$T < 24^{\circ}\text{C} \ \& \ Q < 2,500$	100%	73,000
$T \geq 24^{\circ}\text{C} \ \& \ Q \leq 3,500$	125%	91,000

End GIPOP at Upper Narrows operation when 3-day average temperature at Turner Bridge is less than 21°C in September.

SPECIAL CONDITIONS

K. GULF ISLAND POND OXYGEN INJECTION OPERATION (cont'd)

The oxygenation system plenum shall be installed and available for operation on June 1 of each year or as soon thereafter as river flows recede to 5,000 cfs or less (to allow for safe installation of the system).

Once begun, GIPOP at Upper Narrows operation shall continue, with oxygen injected in accordance with the above requirements, until operation is ended in September, as specified above. Once ended, GIPOP at Upper Narrows operation shall not begin again until the following June, as specified above.

Footnotes:

- (1) All temperature measurements shall be obtained from the continuous temperature monitor at Turner Bridge and shall be expressed as a 3-day rolling average. Because the monitor records maximum and minimum temperatures for a given day, the daily average temperature will be defined as the arithmetic mean of the maximum and minimum temperatures for any given day. The 3-day rolling average is defined as the arithmetic mean of three daily average temperature values.
- (2) All flow measurements shall be obtained from the USGS gage at Rumford and shall be expressed as a 3-day rolling average. The flow gage does record average daily flows thus the 3-day rolling average is defined as the arithmetic mean of the three daily average flow values.

Failure of the system to inject oxygen as specified above in any 24-hour period as measured from 8:00 AM to 8:00 AM shall constitute a permit exceedence, with the exception of failures due to extraordinary acts of nature beyond the permittee's control. Failures shall be reported orally to the Department as soon as possible, and EPA immediately. Written notification shall be submitted to the Department both agencies within five days.

For the months of June, July, August and September of each calendar year, the permittee shall submit a spreadsheet (similar in format to the example below) to the Department as an attachment to the respective monthly Discharge Monitoring Report (DMR).

<u>Date</u>	<u>Temperature (°C)</u>	<u>River Flow (cfs)</u>	<u>Oxygen Injected (lbs/day)</u>
6/1	23°C	3,200 cfs	38,000 lbs/day
--	--	--	--
6/30	25°C	2,900 cfs	92,150 lbs/day

SPECIAL CONDITIONS

K. GULF ISLAND POND OXYGEN INJECTION OPERATION (cont'd)

On or before June 1, 2010, the permittee shall be responsible of injecting up to 39,900 lbs/day of oxygen (38% of 105,000 lbs/day transferred at 33% efficiency assumed in modeling for the Upper Narrow diffuser) or an equivalent amount at an alternate efficiency at Upper Narrows (Androscoggin River Mile 31.4).

On or before June 1, 2010, [PCS Code ____] the permittee shall install and have fully operational, an oxygen injection system located at Lower Narrows (Androscoggin River Mile 29.5) capable of injecting up to 24,891 lbs/day of oxygen at 33% efficiency or an equivalent amount into the water column at an alternate efficiency between June 1 and September 30th of each year.

On or before December 31, 2007, [PCS Code ____] the permittee shall submit to the Department for review and approval, a scope of work and schedule for the construction of the oxygen injection system.

One or before December 31, 2009, [PCS Code ____] the permittee or in conjunction with other parties, shall submit to the Department for review, an Operations and Maintenance (O&M) plan for the oxygen injection system.

The permittee may independently or in conjunction with other parties, submit to the Department for review and approval, a proposal for an alternate oxygen injection system(s) or an alternate oxygen injection plan(s) regarding quantities of oxygen injected at each site to meet the oxygen injection requirements recommended in the TMDL. The alternate system(s) must be installed and fully operational on or before June 1, 2010.

L. BIOLOGICAL MONITORING PROGRAM

The permittee is required to develop and implement an annual biological monitoring plan to monitor the bird species cited in paragraph L(1)(a) below. Except as specified below, the monitoring plan will remain in effect until the Department, after consultation with the USF&W and the State's IF&W, formally (in writing) relieves the permittee of their obligation to continue to carry out the plan.

1. **On or before September 15, 2005**, the permittee shall submit to the Department for review and approval, a biological monitoring plan to monitor the bird species listed in paragraph L(1)(a) below. The permittee shall consult with USFWS's Maine Field Office, the USEPA's Region I Maine State Ecosystem Office and the State of Maine Department of Inland Fish & Wildlife's (IF&W) Bangor Office when preparing the monitoring plan.

SPECIAL CONDITIONS

L. BIOLOGICAL MONITORING PROGRAM (cont'd)

The permittee must receive written approval of said plan from the Department prior to commencing the monitoring. The biological monitoring plan shall include the following items:

- a. Bird samples (non-viable eggs and dead young sub-adults or adults) of bald eagles, ospreys, great blue herons and common loons shall be collected when available from nests on the main stem of the Androscoggin River and on major tributaries within twenty five (25) miles of the permittee's mill and in reference/background areas;
 - b. The following environmental contaminants shall be measured in each sample: standard PCDD/F analysis, congener-specific PCB analysis, organochlorine pesticides analysis, and standard metals analysis including lead and mercury;
 - c. Aerial and ground based monitoring of eagle nests shall begin during eagle nest occupation followed by sequential visits to determine the day of egg laying. Aerial surveys shall resume once the eggs are expected to hatch. To identify dead chicks, subsequent flights shall continue until all chicks have fledged;
 - d. If encountered during sample collection, surviving eagle chicks (at least five weeks old) shall be banded; *(Note: sample collectors and analytical laboratories shall have the appropriate federal and state scientific and ESA possession permits.)*
 - e. Complete copies of sample analytical reports with QA/QC results will be made available promptly to the Department, USFWS, IF&W and the permittee if the reports are conducted by an entity other than the permittee.
2. **Beginning thirty (30) days after written approval from the Department of the biological monitoring plan**, the permittee shall commence implementation of said plan by conducting the biological sample collection and analysis as specified in paragraph L(1)(a-e) above.
 3. **By December 31st of each calendar year**, **[PCS Code _____]** the permittee shall prepare and provide an annual report to the Department and entities identified in paragraph L(1) above, describing the results of the previous years biological monitoring activities.
 4. Alternatively, the permittee may provide funding annually to the Maine IF&W and or USFWS to reimburse said agencies for the cost of surveys, bird sample collections, sample preparations, sample analysis and generation of the report as specified in paragraphs L(1)(a-e), L(2), and L(3) above . The permittee is responsible for submitting the annual report to the Department.
 5. The total cost to the permittee for the monitoring program shall not exceed an annual cap of \$10,000.

SPECIAL CONDITIONS

L. BIOLOGICAL MONITORING PROGRAM (cont'd)

6. The permittee must meet annually with the Department and entities identified in paragraph L(1) above to discuss results of the previous year's monitoring, plans for the upcoming year's monitoring, the need for continuance of the program and to evaluate progress made by the permittee's mill to reduce loadings consistent with its technology based permit limitations. This special condition expires on the expiration date of the permit thereby limiting the monitoring to a five-year term. Any data/information collected during the term of this permit may be considered during the subsequent permit renewal.

M. AMBIENT WATER QUALITY MONITORING

By February 1st of each year (beginning February 1, 2006), [PCS Code ____] the permittee shall independently or in conjunction with other parties, submit an updated ambient water quality monitoring plan for that year to the Department for review and approval with or without conditions.

Between June 1 and September 30 of each year (beginning June 1 2006)

[PCS Code ____] the permittee shall independently or in conjunction with other parties participate in ambient water quality monitoring of Gulf Island Pond and/or designated segments of the Androscoggin River at a frequency of 1/Week. There must be at least 72 hrs between sampling events. Samples for total phosphorus, ortho-phosphorus, chlorophyll *a*, secchi disc readings and dissolved oxygen/temperature profiles at one-meter increments and physical observations shall be taken at five (5) sampling stations. The sampling stations are designated as Twin Bridges, Upper Narrows, Lower Narrows, Gulf Island Pond 4 and Gulf Island Dam (deep hole). Sampling procedures must be consistent with the protocols established in a document entitled, Androscoggin River & Gulf Island Pond Water Quality Monitoring Plan 2004, Acheron, May 2004 or the most current revisions to said plan approved by the Department.

By November 30th of each year (beginning November 30, 2006), [PCS Code ____] the permittee shall independently or in conjunction with other parties, submit a written report to the Department summarizing the results of the monitoring for that year. The report shall include, but not be limited to, all the field data and any pertinent field observations (algal blooms in particular), a statistical analysis of the field data and interpretation and/or conclusions drawn from the analysis and/or data and any recommendations for revisions to the monitoring plan (if appropriate) for the following year.

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

1. **On or before March 1, 2006, [PCS Code ____]** the permittee shall submit to the Department for review and approval, with or without conditions, a report of a Comprehensive Performance Evaluation ("CPE") of the wastewater treatment facility utilizing the services of a qualified independent consultant having expertise in treatment of wastewater from pulp and paper mills. Particular emphasis will be given to evaluation of the primary and secondary clarifiers, aeration basin, solids handling capabilities and instrumentation. Prior to beginning the CPE, but in no event later than **October 31, 2005**, the permittee shall submit to the Department for review and approval a scope of work for the study. The CPE shall include but not be limited to the following:
 - a. Primary clarifiers – Evaluation of the effectiveness of settling aids or other chemicals in the primary clarifiers. The purpose of these aids or chemicals is to improve the removal of pollutants so that loadings to the secondary treatment system are minimized. Particular attention will be given to removal of inorganic solids. A settling aid or chemical identified in the trials as effective in primary clarifiers will be used upon the Department's approval of the study. Alternatively, the permittee may complete pollution prevention projects to remove targeted materials from the wastewater flow.
 - b. Aeration basin – Evaluation of all aspects of the physical and biological operations of the basin in order to optimize its performance in the treatment process. Of particular concern is how sludge deposition affects the practical working volume and final effluent quality. Means of reducing and stabilizing the sludge will be studied with the objective of creating an optimal working volume and preventing future deposits from occurring. Emphasis will be given to the location and relocation of mechanical mixers. One goal of the evaluation is to recommend an operating strategy aimed at reduction of solids in the aeration basin over time. The evaluation will also recommend additional mixers and/or aerators necessary for proper operation of the basin.
 - c. Secondary clarifiers - Evaluation of the effectiveness of settling aids in the secondary clarifiers on an annual basis. The purpose of these aids or chemicals is to improve the removal of pollutants so that loadings to the receiving waters are minimized. A settling aid or chemical identified in the trials as effective in secondary clarifiers will be used upon the Department's approval of the study. . Trials will be conducted on a regular basis to determine the effectiveness and need for settling aids. If, based on the trials, the permittee concludes that settling aids are not effective or necessary to achieve final effluent limitations in paragraph A, *Effluent Limitations and Monitoring Requirements*, it may submit for the Department's approval a written request to terminate the use of settling aids.

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

- d. Instrumentation - Evaluation for improved monitoring and instrumentation at the wastewater treatment facility. The purpose of these improvements is to provide the maximum information for optimal control of treatment processes. The CPE shall evaluate the usefulness of, among other things, clarifier sludge blanket transmitters, turbidity meters, and regular microbial sludge analysis. In addition, it will provide for ongoing analysis of process control trends, measurement of total phosphorus and ortho-phosphate, and solids inventory control on a real time basis.

Improvements will be implemented on a schedule in the approved CPE, and will be completed as soon as possible in order to ensure compliance with the effluent limits specified in Special Condition A, *Effluent Limitations and Monitoring Requirements*, that become effective June 1, 2010.

2. **On or before December 1, 2005**, [PCS Code ____] the permittee shall submit to the Department for review and approval, with or without conditions, a report evaluating the use of phosphorus in the manufacturing process in order to identify and minimize losses to the wastewater treatment facility. Prior to beginning the evaluation, but in no event later than **October 1, 2005**, the permittee shall submit to the Department for review and approval a scope of work for the study. This shall include a comprehensive mill-wide mass balance analysis, and will evaluate the phosphorus content of chemicals and materials utilized by the permittee and options for product substitution to reduce the use of phosphorus where feasible. Recommendations for an on-going sewer sampling program with locations and frequencies sufficient to accurately characterize all significant phosphorus loadings to the wastewater treatment facility will be included. The approved evaluation will also contain a program that the permittee will implement to review and minimize the potentially meaningful sources of phosphorus in materials as an ongoing practice through its purchasing practices. Improvements will be implemented on a schedule in the approved report, and will be completed as soon as possible.
3. **On or before December 1, 2005**, [PCS Code ____] the permittee shall submit to the Department for review and approval, with or without conditions, a report of an evaluation of the mill's manufacturing processes conducted by an independent consultant having expertise in the evaluation of pollution control and manufacturing efficiencies in pulp and paper manufacturing. Prior to beginning the study, but in no event later than **October 1, 2005**, the permittee shall submit to the Department for review and approval a scope of work for the study. The study shall consider all components of the mill's operations and identify opportunities for reducing pollutant loadings discharged to the wastewater treatment facility. In doing so, emphasis will be placed on comparison of mill's operations to other similar mills that are considered to have low levels of pollutant losses per ton of product. Particular consideration will be given to water use, control of coating materials, BOD5

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

and TSS on a per ton basis. Attention will be given to all significant waste streams, with emphasis on those having high concentrations of pollutants or volume. The study will take into account contributions from operations at the mill site not under IP's direct control, such as the Precipitated Calcium Carbonate plant and gas turbine operations.

The manufacturing process study shall also evaluate means of preventing pollutants from entering the mill's sewer system due to spills, upsets or abnormal operating conditions within the manufacturing process. The study shall recommend means for real-time process monitoring (e.g. rate of change alarms) that can be used to prevent pollutants from unnecessarily being lost to the sewer system. Present sewer monitoring programs will be reviewed to ensure that the best possible use is made of continuous in-line monitors at all important locations determined by flows and loads and the resulting information is made available to manufacturing and wastewater treatment personnel on a real-time basis. Changes to manufacturing processes and equipment to reduce the incidence of abnormal events and minimize sewer losses shall be considered.

The approved report will contain recommendations and time schedules for implementation of projects to reduce water use and the loss of pollutants to the wastewater treatment facility as soon as possible.

4. **On or before June 1, 2006, [PCS Code ____]** using information from Special Condition N(3), the permittee shall submit to the Department for review and approval, with or without conditions, a scope or work and schedule to reduce the flow from the waste water treatment facility such that effluent limits in Special condition A, *Effluent Limitations and Monitoring Requirements* effective June 1, 2010 can be achieved.
5. **On or before June 1, 2007, [PCS Code ____] December 31, 2007, [PCS Code ____] June 1, 2008, [PCS Code ____] December 31, 2008 [PCS Code ____] and June 1, 2009, [PCS Code ____]** the permittee shall submit to the Department, progress reports describing the current performance of the wastewater treatment system, manufacturing and treatment changes occurring in the previous 6-month period, compliance with the terms of this schedule of compliance, improvements proposed for the following 6-month period and the expected results from those improvements.
6. **On or before November 15, 2009, [PCS Code ____]** the permittee shall submit to the Department for review and approval, with or without conditions, an updated Operations and Maintenance (O&M) Plan for the waste water treatment facility, as described in Special Condition I, *Operations & Maintenance (O&M) Plan*.

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

7. **As soon as possible, but in no event later than June 1, 2010**, the permittee shall be in compliance with applicable limitations for TSS, total phosphorus, ortho-phosphorus and oxygen injection (or an equivalent approved alternative) and reduce the monthly average discharge flow to not more than 35 MGD, or another flow as necessary to ensure compliance with those effluent limitations, as determined through the studies and actions pursuant to Special Conditions N(1) through N(4).
8. **On or before June 1, 2010, [PCS Code ____]** the permittee shall submit to the Department for review and approval, with or without conditions, a report of a revised Comprehensive Performance Evaluation ("CPE") of the wastewater treatment facility utilizing the services of a qualified independent consultant having expertise in treatment of wastewater from pulp and paper mills. Prior to beginning the revised CPE, but in no event later than **January 1, 2010, [PCS Code ____]** the permittee shall submit to the Department for review and approval a scope of work for the study. The CPE shall include all components of, and evaluation methods similar to those used in, Special Condition N(1). The CPE may add to or modify the previous CPE based on then-current information. Additionally, the evaluation will include an assessment of the treatment facility's performance and capability to achieve all final effluent limits in Special Condition A, *Effluent Limitations and Monitoring Requirements*.
9. **On or before June 1, 2010, [PCS Code ____]** the permittee shall submit to the Department for review and approval, with or without conditions, a report of additional studies of the same nature as described in Special Conditions N(2) and N(3) as deemed necessary in order to evaluate then-current conditions within the mill and identify further steps to be taken in order to ensure the permittee continues to utilize the most effective means feasible to minimize pollutant loads and wastewater volumes. Prior to beginning the studies, but in no event later than **June 1, 2009**, the permittee shall submit to the Department for review and approval a scope of work for the studies. The studies will, for planning purposes, estimate future loads and flows to the wastewater treatment facility. The studies will address pollutant and flow reductions as necessary.
10. **On or before June 1, 2010, [PCS Code ____]** submit to the Department for review and approval, with or without conditions, a proposal for further flow reductions, utilizing information from previous flow and pollutant reductions and the study conducted pursuant to Special Condition N(9). Such flow reductions shall be set so as to allow the permittee to fully comply with the final effluent limitations described in Special Condition A, *Effluent Limitations and Monitoring Requirements*, and taking into consideration the effectiveness of improvements to the wastewater treatment facility and other relevant factors. The approved proposal shall contain a time schedule upon which the necessary flow reduction projects will be completed as soon as possible, but in no event later than January 1, 2015.

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

11. In the event that the approved studies/evaluations in Special Conditions N(8), N(9) and N(10) indicate that compliance with the final effluent limits in Special Condition A, *Effluent Limitation and Monitoring Requirements*, may not be possible, then **prior to November 1, 2010**, [PCS Code ____] submit to the Department for review and approval, with or without conditions, a facilities plan for upgrade or replacement of elements of the existing secondary wastewater treatment facility. Such improvements shall be based on then-current information and shall be calculated to provide wastewater treatment necessary to optimize the performance of the secondary treatment system. The facilities plan shall be prepared by an independent consulting engineer having expertise in the treatment of pulp and paper wastewater. Particular consideration will be given to addition of another primary clarifier, another secondary clarifier and major modification or replacement of the aeration basin. Installation of tertiary treatment is not required as part of this evaluation. The approved plan will contain an implementation schedule for completion of all recommended improvements as soon as possible, but in no event later than January 1, 2015.
12. **On or before June 1, 2011**, [PCS Code ____] **December 1, 2011**, [PCS Code ____] **June 1, 2012**, [PCS Code ____] **December 1, 2012**, [PCS Code ____] **June 1, 2013**, [PCS Code ____] **December 1, 2013**, [PCS Code ____] **June 1, 2014**, [PCS Code ____] **December 1, 2014** [PCS Code ____] and **June 1, 2015**, [PCS Code ____] the permittee shall submit to the Department, progress reports describing the current performance of the wastewater treatment system, manufacturing and treatment changes occurring in the previous 6-month period, compliance with the terms of this schedule of compliance, improvements proposed for the following 6-month period and the expected results from those improvements.
13. **As soon as possible, but in no event later than June 1, 2015**, the permittee shall be in compliance with applicable limitations for TSS, total phosphorus and ortho-phosphorus and shall reduce the monthly average discharge flow to not more than 30 MGD, or another flow as necessary to ensure compliance with those effluent limitations, as determined through the studies and actions pursuant to Special Conditions N(8) through N(11).
14. At any time during the term of this schedule of compliance, and based on the findings of aforementioned studies/evaluations, effluent monitoring and other information, the permittee may petition the Department to suspend further actions. If the Department finds that work done to that point reasonably ensures that permittee is in compliance with any or all final effluent limit(s) pursuant to Special Condition A, *Effluent Limitations and Monitoring Requirements*, the Department will authorize the Department to suspend

SPECIAL CONDITIONS

N. SCHEDULE OF COMPLIANCE (cont'd)

further work related to the pollutant(s), provided the permittee remains in compliance with the final effluent limit(s). Nothing in this paragraph may be construed to extend or modify the compliance dates contained herein, or in any way alter final effluent limits. Specifically, suspension of work shall not be considered as a basis for extending the time for compliance with final effluent limits.

15. In the event that, through the reports, studies and or evaluations pursuant to Special Conditions N(8) through N(11), the permittee concludes that final limits for phosphorus cannot be met without the installation of tertiary treatment, the permit may elect to request a Use Attainability Analysis ("UAA") pursuant to 38 M.R.S.A., § 464 and according to guidance provided by the Department and EPA prior to installing such treatment. A request for a UAA, if deemed necessary, will be submitted prior to January 1, 2011, along with all necessary supporting information. If a UAA is requested, this permit may be modified in writing to reflect regulatory findings and actions on the UAA.

O. DIOXIN MONITORING PROGRAM

The permittee is required to participate in the State's most current annual Dioxin Monitoring Program (administered by the Department) pursuant to Maine law, 38 M.R.S.A., §420-A.

P. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results specified by the Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at anytime and with notice to the permittee, modify this permit to: 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded; (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information considering ambient water quality conditions.

Q. SEVERABILITY

The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE**

FACT SHEET

Date: **May 13, 2005**

Revised: **July 25, 2005**

PERMIT NUMBER: **ME0001937**

LICENSE NUMBER: **W000632-5N-F-R**

NAME AND ADDRESS OF APPLICANT:

**INTERNATIONAL PAPER COMPANY
Androscoggin Mill
Jay, Maine 04239**

COUNTY: **Franklin County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

**Androscoggin Mill
Jay, Maine 04239**

RECEIVING WATER AND CLASSIFICATION: **Androscoggin River/ Class C**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Thomas Saviello
(207) 897-1422**

1. APPLICATION SUMMARY

Application: IP has filed an application with the Department to renew State Waste Discharge License (WDL) #W000623-5N-C-R that was issued on May 1, 1994. It is noted the May 1, 1994, WDL was subsequently modified on October 16, 1998, to incorporate new color, dioxin and furan limitations and again on June 6, 1999, to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP). **All three licensing actions expired on May 1, 1999.**

The IP mill in Jay, Maine manufactures bleached kraft pulp and fine coated and **specialty** papers from bleached kraft pulp and groundwood pulp. IP has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and Waste Discharge License (WDL) to discharge up to a daily maximum of 51 million gallons per day (MGD) of treated process waste waters, treated sanitary waste waters, contact and non-contact cooling waters, treated landfill leachate, treated stormwater runoff and general housekeeping waste waters associated with a kraft pulp and papermaking facility to the Androscoggin River in Jay, Maine. See Attachment A of this Fact Sheet for a location map and an aerial photograph of the mill complex. The IP waste water treatment facility also treats waste water from three other industrial facilities, the Wausau-Mosinee paper facility, Specialty Minerals and Androscoggin Energy.

2. PERMIT SUMMARY

- a. Regulatory - On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referred to as the MEPDES program and will utilize a permit number of #ME0001937 (same as the NPDES permit) as the primary reference number for IP's MEPDES permit. It is noted that the effective NPDES permit issued by the EPA on May 1, 1992, will be replaced by the MEPDES permit upon the effective date of this permit and all terms and conditions of the NPDES permit will be null and void.
- b. Terms and Conditions - This permit is significantly different than the effective NPDES permit issued by the EPA in 1992 and the effective WDL issued by the State of Maine in 1994 (subsequently modified on October 16, 1998 and again on June 6, 1999) due to new regulations promulgated by EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W000632-44-C-R dated May 1, 1994 and or WDL Modifications WDL #W000632-5N-D-M dated October 16, 1998 and #W000632-5N-E-M dated June 6, 1999:

1. The daily maximum flow limit for Outfall #001.
- ~~2. The daily maximum temperature limit for Outfall #001.~~
2. The technology based pH range limitation for Outfall #001.
3. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plants, Outfall #100 and #200, internal waste streams for the mill.
4. Screening and surveillance level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing for Outfall #001.
5. The monthly average water quality mass and concentrations limits for aluminum for Outfall #001.

This permit is different from WDL #W000632-44-C-R dated May 1, 1994, WDL Modifications WDL #W000632-5N-D-M dated October 16, 1998, and #W000632-5N-E-M dated June 6, 1999, in that it:

6. Establishes a more stringent quarterly average technology based color limit of 120 lbs/ton of unbleached pulp produced for Outfall #001.
7. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.

2. PERMIT SUMMARY (cont'd)

8. Establishes monthly average and daily maximum technology based mass limitations for chemical oxygen demand (COD) for Outfall #001.
9. Eliminates the monthly average water quality based mass and concentrations limits for lead for Outfall #001.
10. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plants, Outfall #100 and #200.
11. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plant, Outfall #100 and #200.
12. Establishes a weekly average and daily maximum river temperature increase reporting requirement.
13. Establishes a requirement for the permittee to maintain and annually update an operations and maintenance (O&M) plan for the waste water treatment facility.
14. Establishes new seasonal water quality based mass limitations for biochemical oxygen demand (BOD) and total suspended solids (TSS).
15. Establishes summertime (June 1 – September 30) water quality based mass limitations for total phosphorus and ortho-phosphorus.
16. Establishes a requirement to participate in ambient water quality monitoring of Gulf Island Pond during the summer months.
17. Establishes a requirement to inject oxygen into the Androscoggin River at a Lower Narrows.
18. Establishes a requirement to inject additional oxygen into the Androscoggin River at Upper Narrows.
19. Establishes a ten-year schedule of compliance for final water quality based mass limitations for TSS, total phosphorus and ortho-phosphorus and a five-year schedule of compliance for the additional oxygen injection requirements.
20. Establishes a daily maximum temperature limitation for Outfall #001.

- c. History: - The most recent significant and relevant regulatory actions for the IP Androscoggin mill are as follows:

May 1, 1992 – The EPA issued a renewal of NPDES permit #ME0001937 for a five-year term.

May 1, 1994 – The Department issued WDL #W000632-44-C-R for a five-year term.

2. PERMIT SUMMARY (cont'd)

April 1998 – The EPA promulgated new National Effluent Guidelines (NEGS) for a portion of the pulp and paper industry. The NEG's applicable to the IP mill are found at 40 CFR Part 430, commonly referred to as the Cluster Rule.

October 16, 1998 - The Department issued WDL modification #W000632-5N-D-M to incorporate limitations for dioxin, furan and color.

June 6, 1999 - The Department issued WDL modification #W000632-5N-E-M to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP).

January 12, 1999 – The permittee submitted a timely and complete application to the Department to renew the WDL.

May 23, 2000 – Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee. ~~thereby~~ This action administratively modified WDL # W000632-44-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 15.8 parts per trillion (ppt) and 23.7 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury.

June 29, 2000 – The EPA and IP entered into an agreement entitled, Final Project Agreement, International Paper XL Project: Effluent Improvements, June 29, 2000. IP sought the agreement as a regulatory exemption from the Best Management Practices (BMP) under the water portion of the Cluster Rule in order to reinvest resources to implement effluent improvement projects designed specifically to reduce final effluent discharge of chemical oxygen demand (COD) and color. The agreement outlines IP's acceptance of limitations for COD (not established in the NEGs) and more stringent limitations for color than State law requires that are to be incorporated into this permit. These limitations are referred to as Phase I limitations in the agreement. In addition, the agreement provides for possibly even more stringent long-term average performance goals to be achieved.

January 12, 2001 - The Department received authorization from the EPA to administer the NPDES program in Maine.

October 9, 2001 – The Town of Jay Planning Board issued a local permit for a five-year term for the discharge of waste water from the IP mill. The document is entitled, State of Maine Town of Jay Planning Board, Jay Water Permit No. 5, International Paper Company, October 9, 2001.

July 18, 2004 – The EPA approved a total maximum daily load (TMDL) entitled, May 2005 TMDL, Final for the Androscoggin River.

2. PERMIT SUMMARY (cont'd)

- d. Source Description: IP's Androscoggin mill is an integrated facility engaged in the production of approximately 1,840 tons per day of fine coated and specialty papers from bleached kraft and groundwood pulp. The IP mill has three separate pulping operations, one dedicated to pulping softwood and one dedicated to hardwood via the kraft process and one dedicated to ground wood pulping. IP refers to the kraft softwood operation as Digester and Bleach Plant "A" and the kraft hardwood operation as Digester and Bleach Plant "B". IP has been and will be sampling the two bleach plant effluents for a number of compounds including 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan). Combined, the kraft pulp mills produce approximately 1,000 tons per day of pulp (January 2001 – June 2004).

Kraft pulp production is split at approximately 60% softwood and 40% hardwood. The IP pulp mills have been elemental chlorine free (ECF) since December of 1996 and uses chlorine dioxide as the primary bleaching agent.

Waste waters discharged include treated process waters, treated sanitary waste waters, treated landfill leachate, treated storm water runoff and other miscellaneous waste waters associated with the papermaking process. A review of IP's monthly Discharge Monitoring Report (DMR) data indicates that the long term (three year mean for 2001 –2004) discharge flow has averaged 41.9 MGD, the summertime (June 1 – September 30) biochemical oxygen demand (BOD₅) averaged 4,966 lbs/day, the summertime total suspended solids (TSS) averaged 10,846 lbs/day, and a summer time average temperature of 89.1°F with a daily maximum temperature of 91.7°F. The permittee has indicated that these values are expected to be representative when production is at or near the production levels cited above.

The IP mill generates waste water from the operations and activities presented below. This wastewater is treated in the wastewater treatment plant located at the facility and discharged through Outfall 001.

Paper Machines: The paper mill generates process waste water from four paper machines, stock preparation, coating preparation, and additive operations. The paper machines recycle various waste water sources whenever possible. As part of maintaining operations, various chemicals are used for cleaning the machines and process components. Approximate flow: 13 MGD

Bleach Plant: The bleach plants contribute caustic and acid waste waters from the bleaching and chemical preparation operations. Where possible, bleaching filtrate is reused as shower medium in other bleach stages. Approximate flow: 10 MGD

Storm water: Storm water run-off for the active mill facility is largely collected in the sewer system in a series of storm drains and routed to the waste water treatment facility. All Stormwater run-off not collected and transported to the waste water treatment facility is regulated by the U.S. Environmental Protection Agency Multi-Sector General Permit #MER 05A031. Approximate flow: 3-6 MGD

2. PERMIT SUMMARY (cont'd)

Power Plant: The power plant contributes waste water from liquor recovery, steam and electric generation, boiler feedwater conditioning, and evaporator systems. Wastewater sources include, but are not limited to, boiler blowdown, demineralizers (acid and caustic), sluiced boiler ash, condensate, and cooling water. Approximate flow: 4.5 MGD

Wausau-Mosinee Mill: Process wastewater from the Wausau-Mosinee mill located in Jay, Maine mill which produces approximately 220 tons per day of fine paper from a mix of purchased kraft and groundwood pulp is treated in the waste water treatment facility. Approximate flow: 2.5-3.0 MGD

Pulp Mill: The pulp mill contributes wastewater from the following wood fiber processes/systems: digester systems, screening, cleaning, brown stock washing, deckering, and reject handling. Counter-current washing and black liquor recovery reduces the quantity of waste water discharged to the waste water treatment plant. Approximate flow: 4 MGD

Wastewater Treatment: Waste water associated with sludge and filtrate recycling are generated and treated in the waste water treatment plant. Approximate flow: 2 MGD

Wood Prep/Wood rooms/Groundwood: These areas contribute waste water generated during the handling, washing, and processing of round wood. Extensive reuse of water occurs within these operations. Approximate flow: 1.8 MGD

Water Treatment: The water treatment plant clarifies water from the Androscoggin River for use by the facility. The water is processed by a series of pulsators and sand filters to remove suspended matter. Solids that accumulate in the pulsators are purged directly to the waste water treatment plant. The sand filters are backwashed at scheduled intervals with treated water to remove accumulated solids. This filter backwash is piped directly to the Riley pump station and then to the water treatment plant with the raw river water. Approximate flow: 1 MGD

Specialty Minerals PCC Plant: Process waste water from the Specialty Minerals PCC plant (precipitated calcium carbonate) is treated in the waste water treatment facility. The Specialty Minerals PCC Plant is located at the Androscoggin Mill's site in Jay, Maine. Approximate flow: 0.7 MGD

Sanitary Waste: Sanitary waste water is generated from toilets, lavatories, and showers located throughout the mill. It is treated in the acid sewer; and both streams are directed to the waste water treatment facility. During shutdowns, sanitary wastes are disinfected through the addition of sodium hypochlorite or calcium hypochlorite. Approximate flow: 0.2 MGD

2. PERMIT SUMMARY (cont'd)

Recaust: Recaust generates caustic waste waters during the recausticizing process. Approximate flow: 0.1 MGD

Landfill Leachate: Leachate is generated from special wastes contained in the Androscoggin Mill's landfill and from associated groundwater collection systems. Approximate flow: 0.1 MGD

Androscoggin Cogeneration Power Plant: Process waste water from the Androscoggin Energy Congeneration Power Plant will be treated at the waste treatment facility. ~~The cogeneration power plant is currently under construction. When completed, it will use boilers fired with~~ It uses natural gas to generate both steam and power. In addition to water from equipment drains, the plant will discharge cooling tower and boiler blowdown water. Approximate flow: 0.05 MGD

Cooling Water: ~~All~~ Cooling water from the mill cooling towers and from equipment is recycled. Any discharge from the systems that is not recycled is treated in the wastewater treatment facility.

Other: Several other activities at the facility contribute waste water to the waste water treatment plant. These include, but are not limited to, the following:

- rejected pulp knots dewatering;
 - vehicle washing;
 - fire protection;
 - flash dryer operating;
 - maintenance (housekeeping, tank cleaning, acid cleaning, caustic boilouts, etc.); and
 - equipment start-up and shut-down.
- ~~• Approximate flow: Variable~~

Intermittent Discharges : IP operates and maintains two (2) fire water pumps, one (1) electric, and one (1) diesel. These pumps are located on the west bank of the Androscoggin River, approximately 2,300 feet upriver from the effluent diffuser (Outfall 001). The pumps serve only as emergency backups to the normal mill fire water supply and are used very infrequently. The electric pump is rated for 2,000 gallons per minute and the diesel pump for 1,500 gallons per minute. Both pumps are run weekly for approximately five (5) minutes in order to verify their operability. On an annual basis, the pumps are run long enough, approximately ten (10) minutes, to check the water pressure generated by the pumps. River water is used to cool the top shaft bearings on both fire water pumps. In addition, the diesel pump utilizes non-contact cooling water from the river and discharges the water back to the river.

2. PERMIT SUMMARY (cont'd)

- e. Waste Water Treatment – IP's waste water treatment plant provides primary clarification, biological treatment, and secondary clarification. The treatment plant equipment consists of two (2) coarse mechanical screens, two (2) primary clarifiers each measuring 180 feet in diameter, four (4) influent pumps, chemical addition for pH adjustment, one (1) aeration basin, two (2) secondary clarifiers each measuring 255 feet in diameter, and one (1) activated sludge handling system, one (1) gravity thickener, and eight (8) seven (7) screw sludge presses. Additionally, temporary sludge presses may be brought on site and operated as necessary.

Acidic process waste water is collected separately from the caustic and neutral pH range wastewater. The mill's sanitary waste water is disinfected by combining it with the acid process waste water. Disinfection by sodium hypochlorite or calcium hypochlorite is utilized if the acid wastewater is unavailable for treatment.

Caustic and neutral pH waste waters are collected by sewer lines and directed to the waste water treatment plant. The waste water from the sewer flows through mechanically-raked bar screens to remove large objects. These objects are then landfilled. Process waste water from the Wausau-Mosinee mill combines with the Androscoggin Mill's flow just downstream of the bar screens. The combined waste water then flows to a splitter box which subsequently divides the flow between the two (2) primary clarifiers. The combined acid process waste water and sanitary waste water combines with effluent from the primary clarifiers. This waste stream does not receive primary clarification because very few of the suspended solids can be removed by screening or conventional treatment.

Lime, Caustic, or sulfuric acid is used to adjust the pH of the combined waste water prior to the aeration basin's lift pump station. Four (4) centrifugal pumps lift the combined waste water from a wet well to the aeration basin through a 42-inch force main. Phosphoric acid and aqueous ammonia urea are injected on an as needed basis into the force main before the aeration basin to provide nutrient sources that enhance biological growth. The aeration basin is an irregular shaped earthen berm structure with mechanical surface aerators. The aerators entrain air and mix the solids and liquid in the aeration basin to biologically treat the waste water.

The waste water exits the basin over a weir and enters a splitter box where the flow is divided between the two (2) secondary clarifiers. Polymer is may be added before the secondary clarifiers to enhance settling of solids in the waste water. Stamford baffles have been installed in these clarifiers to aid in the removal of solids. The settled solids are then drawn off the secondary clarifiers.

Return sludge pumps recycle most of the solids back to the aeration basin as a seed source for the biological community in the basin. The return line enters the basin within 25 feet of the influent force main from the lift pump station. Waste sludge pumps remove excess solids from the secondary clarifiers to the gravity thickener. The Waste sludge from the secondary clarifiers may be dewatered separately, or it may be combined with primary sludge in a holding tank prior to being dewatered in the process. then flows to the screw presses where it is combined with the

2. PERMIT SUMMARY (cont'd)

~~solids from the primary clarifiers in a sludge holding tank.~~ Polymer is added to the sludge prior to the holding tank to increase the dewatering efficiency of the ~~screw~~ presses. After dewatering by the presses, the sludge cake is conveyed to a waste fuel incinerator where it is burned ~~or Excess sludge or sludge produced when the boiler is not in operation is~~ hauled to the on-site facility landfill.

Defoamer is added to the final effluent in the overflow from the secondary clarifiers, as necessary. The final effluent then flows to a collection box, where flow from the two (2) secondary clarifiers is combined. Prior to discharge to the river, the effluent flow passes through a foam dissolving tank which allows for physical separation of the foam from the effluent. The combined flow passes through a continuous flow monitor and to the Outfall 001 diffuser for discharge into the Androscoggin River. The diffuser is located on the westerly side of the Androscoggin River just upstream of the confluence with Allen Brook. During the winter months, a portion of the effluent flows through a heat exchanger to recover energy from the final effluent. The compliance sampling point for the final effluent is located at the secondary clarifier collection box.

An emergency spill pond is available in the event of an unforeseen shutdown or power failure of the lift pump station. The spill pond provides the capacity to contain up to six (6) hours of peak wastewater flow. Electric and diesel pumps capable of handling these flows are located in the pond. Separate back-up electricity is also available in the event of any power failures.

During periods of extreme stormwater runoff due to rainfall or snow melt events when the waste water treatment facility and primary outfall are hydraulically limited, a portion of the secondary treated waste water is diverted to a secondary outfall pipe located immediately adjacent to Outfall #001. All flows discharged through the secondary outfall are measured and included in analysis for all effluent samples and calculations for compliance purposes. It is noted, the permittee is currently investigating the cause(s) of the hydraulic limitations and the potential corrective actions to eliminate the need to utilize the secondary outfall.

See Attachment B of this Fact Sheet for a flow diagram of the treatment process associated with waste waters discharged through Outfall #001.

3. RECEIVING WATER QUALITY STANDARDS:

The Androscoggin River is one of the four major New England river basins. The basin extends from the Canadian border to the Atlantic Ocean covering a 3,450 square mile section of eastern New Hampshire and southwestern Maine. New Hampshire has classified the main stem of the river as Class B above and below the Fraser Paper **NH LLC's pulp mill in Berlin N.H. and paper mill in Berlin Gorham N.H.** Maine has classified the river as Class B [Maine law, 38 M.R.S.A. §467(1)(A)(1)] from the Maine-New Hampshire boundary to its confluence with the Ellis River and Class C [Maine law, 38 M.R.S.A. §467(1)(A)(2)] below the Ellis River to the confluence with Merrymeeting Bay in Brunswick. The river above and below the IP mill is classified as a Class C waterway.

Pursuant to Maine law 38 M.R.S.A. §465(4)(B) **(as amended via P.L. 2005, Chapter 409)** states in part, *The dissolved oxygen content of Class C water may be not less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained. In order to provide additional protection for the growth of indigenous fish, the following standards apply.*

(1) The 30-day average dissolved oxygen criterion of a Class C water is 6.5 parts per million using a temperature of 22 degrees centigrade or the ambient temperature of the water body, whichever is less, if:

(a) A license or water quality certificate other than a general permit was issued prior to March 16, 2004 for the Class C water and was not based on a 6.5 parts per million 30-day average dissolved oxygen criterion; or

(b) A discharge or a hydropower project was in existence on March 16, 2005 and required but did not have a license or water quality certificate other than a general permit for the Class C water.

(1) This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

(2) In Class C waters not governed by subparagraph (1), dissolved oxygen may not be less than 6.5 parts per million as a 30-day average based upon a temperature of 24 degrees centigrade or the ambient temperature of the water body, whichever is less. This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

It is noted the portion of classification standard in the paragraphs above was revised in August 2004 and again in June 2005 such that a new 30-day rolling average dissolved oxygen standard of 6.5 parts per million (mg/L) must be maintained as well as the already established instantaneous minimum of 5.0 parts per million. This revision to the classification standard was **necessary** to codify the 6.5 mg/L criteria utilized by the Department in historic modeling practices and to be consistent with the EPA publication, *Quality Criteria for Water, 1986*, (Gold Book) that establishes a dissolved oxygen criteria

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

with a 30-day mean of 6.5 mg/L to protect and support all species of fish indigenous to the receiving waters and maintain the structure and function of the biological community during typically high seasonal temperatures. This change in water quality standards **has not been** formally approved by the EPA as a change in the State's Class C water quality standards as of the date of this permitting action and is therefore not in effect. However, on July 19 2005, the EPA formally approved the Department's May 2005 TMDL for the Androscoggin River which utilized the 30-day average dissolved oxygen standard of 6.5 mg/L at a temperature of 22°C in its analysis.

However, Therefore, based on a best professional judgment by the Department and EPA's approval of the TMDL to protect and support all species of fish indigenous to the receiving waters and maintain the structure and function of the biological community, this permitting action is utilizing a 30-day average ambient dissolved oxygen criteria of 6.5 mg/L at 22°C in establishing monthly average biochemical oxygen demand (BOD) limitations.

The use of a **monthly 30-day** average standard that considers temperature is premised on the fact that a monthly average standard is designed to protect for those conditions over which salmonid growth may occur. The EPA's 1986 *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Freshwater)* (the "Gold Book") provides a maximum temperature for zero net growth of Atlantic salmon (20°C), brook trout (19°C), brown trout (17°C) and rainbow trout (19°C).

The highest and therefore most conservative of these values is 20°C. To provide an additional margin of error, the Department considers that a temperature threshold of 22°C will be protective of growth relative to dissolved oxygen.

Gary Chapman, one of the authors of the EPA "Gold Book", provided information (he did not take a position on any particular standard) to the Department during the 2004 legislative deliberations on this standard. Dr. Chapman developed bioenergetics models that specifically integrate temperature, dissolved oxygen and fish growth. By memo dated February 11, 2004, he presented modeling results from laboratory measurements showing how the application of these two different temperatures would affect the total weight of an individual salmon. He emphasized that net annual growth of fish was more relevant than instantaneous monthly growth. Dr. Chapman concluded that *"the possibly slight effect of minimally reduced DO (e.g. down to 5 mg/L or so) during periods of high temperature is probably inconsequential to the annual growth of fish if most of the growth occurs during other periods of the year."* This is because annual growth is limited by water temperature during the summer period but continues during cooler months. The model showed that a 100-gram salmon subject to a temperature of 20°C would still realize net annual growth but gain 2 grams less net annual weight than one subjected to 24°C. Fish subjected to either condition would grow. In Dr. Chapman's model, a "20°C fish" has 98% of the weight of a "24°C fish". Through interpolation, one can expect that a difference between 22°C and 24°C would be even smaller. Given that this is a laboratory model, it is unlikely that this relatively small difference could be reliably measured in a river environment given all the ecological variables fish in a river are subjected to (Sauter et al, 2001).

The Department therefore finds that evaluation of a 30-day average dissolved oxygen threshold at 22°C is reasonable and is in keeping with the narrative standard that requires that Class C waters shall "support all indigenous species of fish."

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

Pursuant to Maine law 38 M.R.S.A. §465(4) also states ~~Between May 15th and September 30th, the number of Escherichia coli bacteria of human origin in these waters may not exceed a geometric mean of 142 per 100 milliliters or an instantaneous level of 949 per 100 milliliters. The Department shall promulgate rules governing the procedure for designation of spawning areas. Those rules must include provision for periodic review of designated spawning areas and consultation with affected persons prior to designation of a stretch of water as a spawning area.~~

Maine law 38 M.R.S.A. §465(4) (as amended via P.L. 2005, Chapter 409) also states in part Discharges to Class C waters may cause some changes to aquatic life, provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.

Maine law 38 M.R.S.A. §464(13) states Measurement of dissolved oxygen in riverine impoundments. Compliance with dissolved oxygen criteria in existing riverine impoundments must be measured as follows.

- A. Compliance with dissolved oxygen criteria may not be measured within 0.5 meters of the bottom of existing riverine impoundments*
- B. Where mixing is inhibited due to thermal stratification in an existing riverine impoundment, compliance with numeric dissolved oxygen criteria may not be measured below the higher of:*
 - (1) The point of thermal stratification when such stratification occurs; or*
 - (2) The point proposed by the department as an alternative depth for a specific riverine impoundment based on all factors included in section 466, subsection 11-A and for which a use attainability analysis is conducted if required by the United States Environmental Protection Agency*

For purposes of this paragraph, "thermal stratification" means a change of temperature of at least one degree Celsius per meter of depth, causing water below this point in an impoundment to become isolated and not mix with water above this point in the impoundment.

- C. Where mixing is inhibited due to natural topographical features in an existing riverine impoundment, compliance with numeric dissolved oxygen criteria may not be measured within that portion of the impoundment that is topographically isolated. Such natural topographic features may include, but not be limited to, natural deep holes or river bottom sills.*

Notwithstanding the provisions of this subsection, dissolved oxygen concentrations in existing riverine impoundments must be sufficient to support existing and designated uses of these waters. For purposes of this subsection, "existing riverine impoundments" means all impoundments of rivers and streams in existence as of January 1, 2001 and not otherwise classified as GPA.

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges require application of best practicable treatment, be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, Maine law, 38 M.R.S.A., Section 420 and Department Regulation Chapter 530.5, *Surface Water Toxics Control Program*, requires the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the U.S. Environmental Protection Agency pursuant to the Clean Water Act.

4. RECEIVING WATER QUALITY CONDITIONS

a. Androscoggin River Flow Regime

Beginning in 1983, dissolved oxygen water quality modeling of the Androscoggin River utilized a critical event low flow of 1,550 cfs at Berlin N.H.. This flow rate was based upon a Year-1909 minimum flow maintenance agreement amongst the James River Paper Company, Rumford Falls Power Company, International Paper Company and the Union Water Company, which formed the Androscoggin Reservoir Company. That agreement called for a minimum flow of 1,550 cfs to be maintained at Berlin. Stored water was to be released so that one third (1/3) originates from Aziscohos Lake storage and the remaining two thirds (2/3) from the waters impounded by the Errol Middle, Upper and Rangeley Dams.

A USGS stream flow gauging station (#01054000) is maintained on the Androscoggin River near Gorham N.H. (drainage area of 1,361 mi²). The gage has provided daily river flow records since 1929. As a result of the termination of log drives along the river in 1962, only the post-1962 period of record was used for the purposes of establishing a 7Q10 low river flow for the water quality criteria calculations.

The US Geological Survey has concurred with a statistical analysis supporting use of the post log drive data as indicative of the current hydrologic/regulation conditions. The resultant 7Q10 for the period of record from 1963 to 1989 was determined to be 1,550 cfs at Berlin.

The 7Q10 of the Androscoggin River of 1,663 cfs at the Rumford Paper Company (RPC) mill in Rumford was developed by the ME DEP using the historic record for the Rumford USGS gage. The harmonic mean for the Androscoggin River at the RPC mill of 2,861 cfs was developed by Walter M. Grayman, a consulting engineer for the US EPA 1990 Risk Assessment for Dioxin, using the USGS data base at the Rumford gage (#01054500). It is noted a 7Q10 of 1,663 cfs at the RPC mill results in a 7Q10 of 1,671 at the IP mill and a harmonic mean flow of 2,861 cfs at the RPC mill results in a harmonic mean flow of 3,152 cfs at the IP mill.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

b. Androscoggin River Impoundments

The flow of the Androscoggin River is extensively regulated by numerous dams, both on the river itself and on its tributaries. The existing dams essentially control all but peak flows in the basin. Over 90 percent of the present storage capacity is in the headwaters of the basin above the outlet of Umbagog Lake at Errol, New Hampshire. The only major impoundment on the river itself is Gulf Island Pond (GIP) formed by Gulf Island Dam, near Lewiston, Maine. Gulf Island Dam is a concrete gravity and earthen fill dam with a total length of 2,488 feet and a maximum height of 92 feet. Constructed in 1925-26, the dam consists of earth dikes with concrete core walls at either end of a concrete structure with an overflow spillway section topped by a 7-foot-high inflatable flashboard system (installed in 2002 to replace 7-foot-high hinged steel flashboards), a gated spillway section, an intake section, and a non-overflow bulkhead section. Gulf Island Pond has a surface area of about 2,862 acres and that extends upstream almost 15 miles at a normal full pond elevation of 262 feet mean sea level. The pond is about one-third of a mile wide and has a mean depth of 20 feet although depths in some sections of the pond are as deep as 80 feet. GIP is entirely within the Class C portion of the Androscoggin River.

The Gulf Island **Dam** powerhouse (referred to as Gulf Island Station) is a brick, steel and concrete structure that is integral with the dam. The powerhouse contains three turbine-generator units rated at a total generating capacity of 22,200 kilowatts at a gross operating head of 56 feet. The maximum hydraulic capacity of the station is 6,450 cubic feet per second.

Gulf Island Station is operated as an intermittent peaking facility that re-regulates river flow through the use of available storage. At inflows approaching the station's maximum effective hydraulic capacity of 5,895 cfs, the station is operated to provide base load power, with the generating units running 24 hours a day and with minimal impoundment fluctuations. River flows in excess of the maximum station capacity are spilled through the gates or over the dam. Spillage occurs about 23% of the time on an average annual basis.

At inflows significantly below 5,895 cfs, the station is operated during weekday morning and evening peak power periods, when electrical demand is highest. Passing generating flows in excess of inflows results in the impoundment being drawn down, typically between two and four feet, over the course of a week. The impoundment is then refilled over the weekend. Drawdowns of about 5 feet occur in anticipation of high spring inflows or maintenance.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

c. Historic Water Quality Assessment/Modeling

The IP mill is one of three large pulp and paper manufacturers which discharge treated process wastewater to the Androscoggin River. The other two, Fraser Paper NH LLC, approximately 76 river miles upstream in Berlin, NH and the RPC mill in Rumford approximately 22 river miles upstream in Rumford, Maine. All three mills, in addition to ~~four~~ **six** less significant municipal sources (Berlin and Gorham in New Hampshire and Rumford-Mexico **Sewerage District's main plant and Rumford Point plant, Bethel** and Livermore Falls in Maine), as well as non-point sources along the river contribute to a summertime depressed dissolved oxygen (DO) condition in GIP, approximately 32 miles downstream of the IP mill. Water quality modeling undertaken during the 1980's by DEP and the paper companies discharging to the river indicated that, under pre-1991 wastewater discharge limitations, 65% of the volume of Gulf Island Pond would violate Class C DO standards under low flow (7Q10) conditions. This modeling also revealed that reducing BOD loading from upstream point sources would not be enough to bring DO levels in Gulf Island Pond into compliance with standards.

d. 1990 125.3 Demonstration

Federal regulations found at 40 CFR 125.3(f) allow the use of non-treatment techniques (such as in-stream oxygen injection) to meet water quality based limits if, among other things, the technology-based treatment requirements are not sufficient to achieve the standards, and the alternative selected has been demonstrated by the permittee to be a preferred environmental and economic alternative to achieve the standard after consideration of alternatives such as advanced treatment, recycle and reuse, land disposal, changes in operating modes and other available methods. In November 1990, Boise Cascade (BC) (now RPC), IP, and James River (JR) (now Fraser Paper **NH LLC**) jointly submitted a report prepared by Charles T. Main Inc., to satisfy the requirements of the 125.3(f). The report investigated several alternative methods for minimizing the DO deficit at GIP during warm weather and low flow. Of the various alternatives selected for evaluation, the report concluded that the best alternative for achieving DO standards, considering technical, economic, and environmental issues, was for the IP treatment facility to discharge at no greater than the BOD limits in the effective State license and NPDES permit (12,000 lb/day monthly average and 20,000 lb/day maximum daily) in combination with 27,000 pounds of dissolved oxygen over a 24-hour period of time directly into GIP at a location about 5 miles upstream of the dam during the months of July, August and September of each year.

Alternatives such as BOD reductions from in-plant modifications or from installation of sand filters were rejected as being uneconomical and inadequate to meet the standards. Land application was rejected as infeasible and environmentally harmful. Closed cycle technologies resulting in zero discharge were rejected as being infeasible at that time. The EPA and the Department agreed with the rejection of these alternatives at that time. Central Maine Power Company filed an application with the Federal Energy Regulatory Commission in November 1991 for a new license for the Gulf Island Pond-Deer Rips Project. Exhibit E, Section (2.4.3) of the application indicates that a cursory assessment

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

of alternative withdrawal sites and operating procedures of the dam had been considered. Those alternatives included lowering of the powerhouse intakes, turbine venting, draft tube aeration, operational changes to decrease travel time through the pond, sediment removal and impoundment oxygenation. Central Maine Power Company concluded that of the alternatives available for improving dissolved oxygen concentrations in Gulf Island Pond, continued oxygenation of the impoundment remained the most viable option.

At the time of the previous licensing action (May 1994) the EPA and the ME DEP concluded that, at least for the five-year term of the permit, oxygen injection into GIP was the preferred environmental and economic alternative to meet the DO standard. In recognition of the fact that elimination of the discharges would not result in dissolved oxygen compliance, oxygen injection was considered the best available technology for increasing the dissolved oxygen in Gulf Island Pond.

e. Gulf Island Pond Oxygen Injection System at Upper Narrows (1992)

In 1989, the ME DEP proposed a partial resolution of the summertime DO deficit at GIP through the development of draft permits/licenses for Boise Cascade (BC), (now RPC), and IP requiring more stringent summer limits than the prior year-round permit/license limits. The new summer limits represented a forty (40) percent reduction in BOD loading to the river which in turn required IP to make capital expenditures at their waste water treatment facility to ensure compliance with the lower limits. Between November 1990 and January 1991, the State of Maine, BC and IP executed Consent Agreements requiring those companies to build and operate an oxygen injection facility at River Mile (RM) 31.4 on the Androscoggin River approximately 5 miles above the GIP dam in a location called Upper Narrows, one of two hydrologic constrictions located on the pond. The Consent Agreement required the system to be in place and operational by June 1, 1992. As a minimum, 27,000 pounds of oxygen would need to be dissolved in the river over a 24-hour time period, on a continuous basis, during the period July 1 through September 30 each year.

In addition to IP and BC, Central Maine Power Company (CMP) (now FPL) and James River (now Fraser Paper NH LLC) in Berlin/Gorham, N.H. were parties to the construction of the oxygenation project at Upper Narrows and are presently responsible parties in the operation and maintenance of the system. To date, the Consent Agreement conditions have been met and the system has operated as designed.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Initially, GIPOP was operated to inject 73,000 pounds of oxygen into Gulf Island Pond (resulting in a dissolved oxygen input of 27,000 pounds) every 24 hours from July 1 to September 30 annually. In 1999, the DEP approved a revised GIPOP operational plan designed to maximize the transfer of oxygen to the river when needed to meet water quality standards and to minimize the transfer of oxygen when not needed to meet standards. Under the revised operational plan, GIPOP operation begins and ends when the 3-day average water temperature at Turner Bridge is greater than 18 degrees Celsius in June and less than 21 degrees Celsius in September, respectively. Once begun in June, GIPOP operation continues until ending in September, with oxygen injection rates ranging from 8,000 to 91,000 pounds per day depending on river flows and water temperatures.

The January 1991 Consent Agreement between the Department and IP contained a condition that prior to December 1, 1993, IP was to submit a report describing the operational experience of the oxygen addition system and present the results of a validated model study to confirm the effectiveness of the aeration system.

On November 26, 1993, the Department received a report titled Water Quality Analysis of Androscoggin River, Summary of Operational Experience and Post Audit of Water Quality Models for the Gulf Island Pond Oxygenation Project, Volume 3, from Water Quality Associates of Tenafly, New Jersey. The report concluded that dissolved oxygen levels in GIP during the summer of 1993 improved significantly as a result of the oxygenation project. The report stated that at a depth of 20 foot, (approximately 75% of the pond volume), the computer model calculated that with the oxygenation system operational, the dissolved oxygen concentration from Androscoggin River Mile 31 to the Gulf Island Pond Dam was consistently above 7 mg/L whereas without the system, dissolved oxygen concentrations would be about 1 mg/L for that reach.

The Department's field monitoring data for the summer of 1993 indicated that on the day the lowest dissolved oxygen readings in the pond were recorded, approximately 94% of the pond volume met the minimum dissolved oxygen concentration standard of 5 mg/L for Class C waters. On the day the highest dissolved oxygen readings were recorded, approximately 99% of the pond volume attained the 5 mg/L standard. The data indicated a significant improvement in the dissolved oxygen levels within the pond as a result of the installation of the oxygenation system.

f. Current Water Quality Assessment/Modeling

Based on the available water quality data **at the time of this permitting action**, the DEP concluded that about 10% of the volume of Gulf Island Pond does not meet Class C minimum instantaneous dissolved oxygen criteria of 5 parts per million under summer low flow and high water temperature conditions and current (actual) point source discharge levels. The DEP also concluded that, under summer low flow and high water temperature conditions and current (actual) point source discharge levels, about 23% of the volume of the pond does not meet the

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

minimum ~~monthly~~ 30-day average dissolved oxygen level of 6.5 parts per million at 22°C needed to satisfy Class C narrative criteria for the support of indigenous fish. Non-attainment of DO standards is typically limited to that portion of the pond within 4 miles of Gulf Island Dam and at depths below 35 feet and is based on actual measured conditions in the pond.

Based on the available water quality data, the DEP further concluded that mixing in Gulf Island Pond is inhibited by intermittent thermal stratification during the summer months, and that the point of thermal stratification occurs at a depth of 60 feet in the pond.

Two segments of the Androscoggin River are listed on Maine's 303d list indicating they do not attain Class C water quality standards. The May 2005 final TMDL prepared by the Department contains the follows statements:

Gulf Island Pond does not attain Class C minimum and monthly average dissolved oxygen criteria in a four-mile segment directly above Gulf Island dam primarily in deeper areas of the water column from 30 to 80 feet of depth. In addition, algae blooms occur from excessive amounts of phosphorus discharged to the river flowing into the pond preventing attainment of the designated uses of water contact recreation. In addition to GIP, the Livermore Falls impoundment does not attain Class C aquatic life criteria as indicated by recent water quality evaluations utilizing macro-invertebrate sampling and the use of a linear discriminate modeling.

The pollutants of concern are carbonaceous biochemical oxygen demand (BOD), ortho-phosphorus (ortho-P), total phosphorus (total-P), and total suspended solids (TSS). Reduction of phosphorus is needed to eliminate algae blooms in Gulf Island Pond. Reduction of carbonaceous BOD, TSS, and phosphorus, is needed to improve dissolved oxygen levels to attainment of Class C criteria. In addition, an instream oxygen injection system currently located five miles above Gulf Island Dam needs to be re-designed to provide additional amounts of oxygen in other areas of the pond.

TSS and algae contribute to sediment oxygen demand, a major source of oxygen depletion in the deeper areas of Gulf Island Pond. The 2002 Modeling Report investigated the importance of sediment oxygen demand, oxygen injection, and paper mill BOD input levels upon the model prediction of dissolved oxygen. Sediment oxygen demand (SOD) was found to be the most important since the model prediction of DO changed the most within given percentages of change for SOD. Varying oxygen injection rates resulted in the second largest response to model prediction of DO and the amounts input for the paper mill BOD inputs resulted in the lowest response of the model DO. This is a useful exercise in showing that reducing pollutants that contribute to SOD (algae, TSS) and oxygen injection are more efficient cleanup actions than reducing paper mill BOD. TSS also is the major cause of non-attainment of Class C aquatic life criteria in the Livermore Falls impoundment.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Paper mills located in Berlin, NH; Rumford, ME; and Jay, ME are the major source of most of the pollutants. Municipal point sources are located in Berlin, NH; Gorham, NH; Bethel, ME; Rumford-Mexico, ME; and Livermore Falls, ME. Livermore Falls is a significant source of ortho-P. All municipal point sources are included in the TMDL. The component analysis of average phosphorus loads discharged in 2004 (Figure 10) indicates that paper mills are still the largest source of phosphorus and account for about 70% of the total-P and 80% of the ortho-P entering the pond. International Paper is the largest single source accounting for 45% of the total-P and 57% of the ortho-P entering the pond. The RPC is the second largest single source of phosphorus, accounting for about 14% of the total-P and 21% of the ortho-P entering the pond. All of the municipal discharges are an insignificant percentage of the total phosphorus entering the pond. However, Livermore Falls is nearly 13% of the ortho-P load entering the pond and can be considered to be a significant contributor of ortho-P. The Fraser Paper mill in Berlin, NH accounts for about 11% of the total-P entering the pond, but only 2% of the ortho-P entering the pond.

The rapid loss of ortho-P in the 2004 ambient data in the river from Berlin and to Jay implies a high ortho-P assimilation rate. The ortho-P appears to remain nearly constant from Jay to Turner implying a low ortho-P assimilation rate. The difference is likely because the Androscoggin River is shallower and more free-flowing from Berlin to Jay as opposed to below Jay, which is impounded, and deep. Shallower water is more suited to growth of bottom-attached plants which uptake ortho-P. MDEP's experience modeling ortho-P uptake in other rivers indicates that as ortho-P concentrations increase, the rate of assimilation of ortho-P also increases.

The threshold for the phosphorus TMDL is to maintain the pond averaged chlorophyll-a under 10 ppb. There are different combinations of total-P and ortho-P that could result in obtaining this goal.

Gulf Island Dam contributes to non-attainment of DO criteria and the growth of algae blooms by creating an environment of low water movement and low vertical mixing within the water column. Modeling also indicates that the presence of the dam accounts for about 20% of the algae levels in Gulf Island Pond with the TMDL implemented. Non-attainment of Class C DO criteria in deeper portions of the pond is predicted by the water quality model even if point source discharges are eliminated due to sediment oxygen demand from natural and non-point sources of pollution.

There are limited opportunities for the control of significant amounts of non-point source pollution given the relatively undeveloped nature of this large watershed.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

A 2002 modeling exercise by the Department predicted that it would be difficult to meet DO criteria with the current oxygenation system (at Upper Narrows) involving only one injection point five miles upstream of the dam at a depth of 30 feet. About two miles below the current injection site is the Lower Narrows where the depth of the pond increases rapidly to a depth of 50 feet. The depth eventually reaches 80 feet at the deep hole above the dam. It is difficult for the oxygen injected at a 30-foot depth (Upper Narrows) to reach the deeper areas of the pond located below Lower Narrows. The model predictions indicate that an additional injection point at Lower Narrows or other locations or a redesigned system is needed.

Current modeling indicates that no degree of BOD removal by the upstream users will completely satisfy the DO standard throughout GIP as a significant deficit in DO is due to existing oxygen demand from sediments trapped by the GIP dam. The model predicts that even without BOD discharges from the three mills, the GIP impoundment would not fully meet State DO requirements during critical flow and temperature periods.

g. 2005 125.3 Demonstration

Department Rule, Chapter 524(2)(II)(F) and federal regulations 40 CFR 125.3(f) allow the use of non-treatment techniques (such as in-stream oxygen injection) to meet water quality based limits if, among other things, the technology-based treatment requirements are not sufficient to achieve the standards, and the alternative selected has been demonstrated by the permittee to be a preferred environmental and economic alternative to achieve the standard after consideration of alternatives such as advanced treatment, recycle and reuse, land disposal, changes in operating modes and other available methods.

Given the Department's model predictions indicate that an additional oxygen injection point at Lower Narrows or other locations and or a redesigned of the existing oxygen injection system at Upper Narrows is needed to achieve Class C dissolved oxygen standards, the Department requested the three pulp and paper mills submit an updated 125.3(f) demonstration. On April 18, 2005, Fraser N.H LLC, MeadWestvaco (now RPC) and International Paper jointly submitted a document entitled, Demonstration For Chapter 524(2)(II)(F) And 40 CFR 125.3(F), Gulf Island Pond Oxygenation System to the Department.

The report evaluated technologies and the economics of advanced treatment, recycle and reuse, land disposal, changes in mill production methods and changes in the operations of the waste water treatment facilities. The report evaluated alternatives and the economics for each mill independently and concluded oxygen injection into GIP is the preferred environmental and economic alternative to meet applicable DO standards.

The Department and EPA (see TMDL approval letter from EPA to the Department dated July 18, 2005) once again conclude for the five-year term of this permit, oxygen injection into GIP is the preferred environmental and economic alternative to meet applicable DO standards.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

h. Gulf Island Pond Oxygen Injection System at Upper Narrows

In 2004, at the Department's request, the Gulf Island Pond Oxygenation Partnership undertook an engineering study to determine the effectiveness of the existing oxygenation system and to determine the feasibility and cost of supplemental oxygenation alternatives. The results of this study are contained in a report entitled Gulf Island Pond Oxygenation Study, Greene, Maine (December 2004), prepared by Wright-Pierce Civil and Environmental Engineering Services.

Based on available estimates and site data, Wright-Pierce calculated the theoretical overall oxygen transfer efficiency for the existing oxygenation system to be on the order of 25% to 30%, depending on the oxygen flow and the river flow.

Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that the gross oxygen transfer efficiency of the existing oxygenation system could be improved by increasing the oxygen diffuser surface area/reducing the oxygen bubble size (i.e., by installing new membrane diffusers) or by an alternative oxygen diffuser configuration (i.e., by installing two diffusers parallel to the shoreline).

Wright-Pierce also evaluated the technical and financial feasibility of various alternative aeration methodologies, including standard diffuser systems, side stream pumping systems, line diffuser systems, and mixers. Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that there were several alternatives of essentially equivalent 15-year total costs which would probably result in compliance with DO standards to the thermocline (i.e., the point of thermal stratification) in Gulf Island Pond. These alternatives included: using new or existing oxygen diffusers at Upper Narrows plus new line oxygen diffusers piped from the existing oxygenation facility to Lower Narrows and the Deep Hole above Gulf Island Dam; and using new or existing oxygen diffusers at Upper Narrows plus new mixers installed between Lower Narrows and Gulf Island Dam.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

As a result of the Department's modeling conclusions, Special Condition K, *Gulf Island Pond Oxygen Injection Operation*, of this permit establishes the requirements for oxygen injection. In the absence of a proposal by the permittee, individually or in conjunction with other parties to construct an oxygen system(s) to meet the default oxygen injection requirements of the Department's May 2005 final TMDL (105,000 lbs/day at Upper Narrows and 105,000 lbs/day at Lower Narrows). This permitting action requires the permittee to:

Beginning ~~September 1, 2005~~ the effective date of this permit, IP, either individually or in combination with Florida Power Light & Energy (FPLE), Rumford Paper Company and Fraser Paper NH LLC shall operate the Gulf Island Pond Oxygenation Project (GIPOP) located at Upper Narrows in accordance with the following:

Begin GIPOP at Upper Narrows operation when the 3-day average temperature⁽¹⁾ at the Turner Bridge is greater than 18°C in June.

<i>Oxygen Injection Thresholds</i>	<i>% Normal Capacity</i>	<i>Oxygen Injection (lb/day)</i>
$Q^{(2)} > 3500 \text{ cfs}$	<i>Idle</i>	8,000
$T < 24^{\circ}\text{C} \ \& \ 3,000 < Q \leq 3,500$	50%	36,500
$T < 24^{\circ}\text{C} \ \& \ 2,500 < Q \leq 3,000$	75%	54,750
$T < 24^{\circ}\text{C} \ \& \ Q < 2,500$	100%	73,000
$T \geq 24^{\circ}\text{C} \ \& \ Q \leq 3,500$	125%	91,000

End GIPOP at Upper Narrows operation when 3-day average temperature at Turner Bridge is less than 21°C in September.

The oxygenation system plenum shall be installed and available for operation on June 1 of each year or as soon thereafter as river flows recede to 5,000 cfs or less (to allow for safe installation of the system).

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Once begun, GIPOP at Upper Narrows operation shall continue, with oxygen injected in accordance with the above requirements, until operation is ended in September, as specified above. Once ended, GIPOP at Upper Narrows operation shall not begin again until the following June, as specified above.

Footnotes:

(1) All temperature measurements shall be obtained from the continuous temperature monitor at Turner Bridge and shall be expressed as a 3-day rolling average. Because the monitor records maximum and minimum temperatures for a given day, the daily average temperature will be defined as the arithmetic mean of the maximum and minimum temperatures for any given day. The 3-day rolling average is defined as the arithmetic mean of three daily average temperature values.

(2) All flow measurements shall be obtained from the USGS gage at Rumford and shall be expressed as a 3-day rolling average. The flow gage does record average daily flows thus the 3-day rolling average is defined as the arithmetic mean of the three daily average flow values.

Failure of the system to inject oxygen as specified above in any 24-hour period as measured from 8:00 AM to 8:00 AM shall constitute a license exceedence, with the exception of failures due to extraordinary acts of nature beyond the permittee's control. Failures shall be reported orally to the Department as soon as possible and EPA immediately. Written notification shall be submitted to the Department both agencies within five days.

For the months of June, July, August and September of each calendar year, the permittee shall submit a spreadsheet (similar in format to the example below) to the Department as an attachment to the respective monthly Discharge Monitoring Report (DMR).

<u>Date</u>	<u>Temperature (°C)</u>	<u>River Flow (cfs)</u>	<u>Oxygen Injected (lbs/day)</u>
6/1	23°C	3,200 cfs	38,000 lbs/day
--	--	--	--
6/30	25°C	2,900 cfs	92,150 lbs/day

On or before June 1, 2010, the permittee shall be responsible of injecting up to 39,900 lbs/day of oxygen (38% of 105,000 lbs/day transferred at 33% efficiency assumed in modeling for the Upper Narrow diffuser) or an equivalent amount at an alternate efficiency at Upper Narrows (Androscoggin River Mile 31.4).

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

On or before June 1, 2010, the permittee shall install and have fully operational, an oxygen injection system located at Lower Narrows (Androscoggin River Mile 29.5) capable of injecting up to 24,891 lbs/day of oxygen at 33% efficiency or an equivalent amount into the water column at an alternate efficiency between June 1 and September 30th of each year.

On or before December 31, 2007, the permittee shall independently or in conjunction with other parties, submit to the Department for review and approval, a scope of work and schedule for the construction of the oxygen injection system.

One or before December 31, 2009, the permittee shall independently or in conjunction with other parties, submit to the Department, an operations and maintenance plan for the oxygen injection system.

The permittee may independently or in conjunction with other parties, submit to the Department for review and approval, a proposal for an alternate oxygen injection system(s) or an alternate oxygen injection plan(s) regarding quantities of oxygen injected at each site to meet the oxygen injection requirements recommended in the TMDL. The alternate system(s) must be installed and fully operational on or before June 1, 2010.

i. The State of Maine 2004 Integrated Water Quality Monitoring and Assessment Report

In addition to the aquatic life non-attainment in the Livermore Falls impoundment and the dissolved oxygen non-attainment in GIP, a document entitled, *The State of Maine 2004 Integrated Water Quality Monitoring and Assessment Report*, prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the Androscoggin River, main stem, from the Maine/New Hampshire border to the Brunswick Dam (126.3 miles) as, “*Category 4-B: Rivers and Streams Impaired by Pollutants, Pollution Control Requirements Reasonably Expected to Result in Attainment.*” Impairment in this context refers to a fish consumption advisory due to the presence of dioxin. The “*Pollution Control Requirements Reasonably Expected to Result in Attainment*, refers to the conversion to elemental chlorine free (ECF) bleaching technology in the mid-1990’s at each of the three kraft mills (Fraser Paper NH LLC in Berlin/Gorham, N.H., Rumford Paper Company in Rumford, ME. and International Paper in Jay, ME.)

In addition, the 2002 Report lists all freshwaters in Maine as “*Category 5-C: Waters Impaired by Atmospheric Deposition.*” Impairment in this context refers to the designated use of recreational fishing due to elevated levels of mercury in some fish caused by atmospheric deposition. As a result, the State has established a fish consumption advisory for all freshwaters in Maine. Maine law 38 M.R.S.A., §420 and Department Rule, Chapter 519, *Interim Effluent Limitations and Controls For the Discharge of Mercury*, establishes controls of mercury to surface waters of the State and United States through interim effluent limitations and implementation of pollution prevention plans. See Section 5(m) of this Fact Sheet.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

- a. Regulatory Basis: The discharge from the IP mill is subject to National Effluent Guidelines (NEG) found in 40 Code of Federal Regulations (CFR) Part 430 – *Pulp, Paper and Paperboard Manufacturing Point Source Category*. The regulation was revised on April 15, 1998, and reorganized 26 sub-categories in the previous regulation into 12 sub-categories by grouping mills with similar processes. Applicable Subparts of the new regulation for the IP facility are limited to Subpart B, *Bleached Papergrade and Soda Subcategory*, Subpart G, *Mechanical Pulp Subcategory*, and Subpart K, *Fine And Lightweight Papers From Purchased Pulp Subcategory*. The NEG's establish applicable limitations representing; 1) best practicable control technology currently available (BPT) for conventional pollutants for existing dischargers, 2) best conventional pollutant technology economically achievable (BCT) for conventional pollutants for existing dischargers, and 3) best available technology economically achievable (BAT) for toxic and non-conventional pollutants for existing dischargers. The regulation establishes limitations and monitoring requirements on the final outfall to the receiving waterbody as well as internal waste stream(s) such as the bleach plant effluents. The regulation also establishes limitations based on several methodologies including monthly average and or daily maximum mass limits based on production of pulp and paper produced or concentration limitations based on BPT, BCT or BAT.
- b. Production: For the period January 2000 – June 2004 inclusively, the IP mill produced an average of 1,840 tons per day (TPD) of fine coated and specialty papers (1,000 tons from bleached kraft pulp and 840 tons from groundwood pulp) and 72 tons/day of unbleached market kraft pulp. These production values are being used to calculate BPT limitations for BOD and TSS in accordance with the NEG's. For AOX and chloroform limitations in this permitting action, an unbleached pulp production value of 1,120 tons/day is being utilized which is the highest annual average for the most recent three year period, calendars 2001 – 2003 inclusively. The facility also accepts process waste waters from the Wausau -Mosinee mill associated with the production of approximately 220 tons per day of fine paper from a mix of purchased kraft and groundwood pulp. The permittee and Wausau-Mosinee have indicated these values are representative of normal production now (and for the foreseeable future) and are therefore being used to derive applicable production based limitations in this permitting action.

OUTFALL #001 (Final effluent)

- c. Flow: The previous licensing action established a daily maximum limit of 51.0 MGD that is being carried forward in this permitting action and represents the design flow of the waste water treatment facility. A review of the Discharge Monitoring Report (DMR) data for the period January 2001 to the present and the long-term average maximum daily flow is 41.9 MGD. It is noted Special Condition N, *Schedule of Compliance*, of this permitting action requires the mill to submit to the Department for review and approval, a scope of work and schedule to reduce the mill's monthly average operating flows to 35 MGD by June 1, 2010 and further reduce the monthly average operating flow to 30 MGD by June 1, 2015.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

- d. Dilution Factors: Dilution factors associated with the discharge from the mill's waste water treatment facility were derived in accordance with freshwater protocols established in Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, October of 1994. With a permitted flow of 51.0 MGD, dilution calculations are:

$$\text{Dilution Factor} = \frac{\text{River Flow (cfs)}(\text{Conv. Factor})}{\text{Plant Flow}}$$

$$\text{Acute: } 1\text{Q}_{10} = 1,671 \text{ cfs} \Rightarrow \frac{(1,671 \text{ cfs})(0.6464)}{51.0 \text{ MGD}} = 21.2:1$$

$$\text{Chronic: } 7\text{Q}_{10} = 1,671 \text{ cfs} \Rightarrow \frac{(1,671 \text{ cfs})(0.6464)}{51.0 \text{ MGD}} = 21.2:1$$

$$\text{Harmonic Mean: } = 3,152 \text{ cfs} \Rightarrow \frac{(3,152 \text{ cfs})(0.6464)}{51.0 \text{ MGD}} = 40.0:1$$

Footnotes:

- (1) Chapter 530.5 (D)(4)(a) states that analyses using numeric acute criteria for aquatic life must be based on 1/4 of the 1Q₁₀ stream design flow to prevent substantial acute toxicity within any mixing zone. The 1Q₁₀ is lowest one day flow over a ten-year recurrence interval. The regulation goes on to say that where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater proportion of the stream design, up to including all of it. The Department made the determination in the previous licensing action that the discharge does receive rapid and complete mixing with the receiving water by way of a diffuser, therefore 100% of the 1Q₁₀ is applicable in acute statistical evaluations pursuant to Chapter 530.5.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001 (Final effluent)**e. Biochemical oxygen demand (BOD₅) & Total suspended solids (TSS):

The following table contains the monthly average and daily maximum BOD and TSS limitations as calculated utilizing the BPT effluent limitation in the NEG's found at 40 CFR Part 430, **Sub-part B**, *Bleached Papergrade and Soda Subcategory*

Final Prod. (t/d)	Subpart B	BOD Avg		BOD Max		TSS Avg		TSS Max	
		kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day
1,840	Kraft Fine Paper	5.5	20,240	10.6	39,008	11.9	43,792	22.15	81,512
72	B-Mkt Kraft	8.05	1,159	15.45	2,225	16.4	2,362	30.4	4,378
1,912	Totals	---	21,399	---	41,233	---	46,154	---	85,890

The following table contains the monthly average and daily maximum BOD and TSS limitations as calculated utilizing the BPT effluent limitation in the NEG's found at 40 CFR Part 430, **Sub-part K**, *Fine And Lightweight Papers From Purchased Pulp Subcategory* (Wausau-Mosinee contribution).

Final Prod. (t/d)	Subpart K	BOD Avg		BOD Max		TSS Avg		TSS Max	
		kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day
220	Fine & Light Weight Paper	4.25	1,870	8.2	3,608	5.9	2,596	11.0	4,840

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

Summary of NEG calculated BPT Limitations

BOD Avg.	BOD Max.	TSS Avg.	TSS Max.
23,269 lbs/day	44,841 lbs/day	48,750 lbs/day	90,730 lbs/day

The 3/1/94 licensing action contained seasonal BOD5 limits and year-round TSS limits as follows:

	BOD Avg.	BOD Max.	TSS Avg.	TSS Max.
June 1 – Sept 30	10,900 lbs/day	18,000 lbs/day	38,080 lbs/day	70,860 lbs/day
Oct 1 – May 31	17,700 lbs/day	34,050 lbs/day	38,080 lbs/day	70,860 lbs/day

The limitations above were originally established in a 7/91 WDL and carried forward in the 5/92 NPDES permit.

This permitting action establishes a combination of annual, seasonal, monthly average and daily maximum limitations for BOD and TSS.

BOD

The summertime (June 1 – September 30) monthly average water quality based BOD limits of 7,400 lbs/day as recommended in the May 2005 TMDL is being established to maintain compliance with the 30-day rolling average dissolved oxygen criteria of 6.5 mg/L at 22 °C. The weekly average and daily maximum water quality based limits of 11,100 lbs/day and 13,875 lbs/day as recommended in the May 2005 TMDL are being established to maintain compliance with the minimum dissolved oxygen standard of 5.0 mg/L. The daily maximum limitation of 13,875 lbs/day was derived by multiplying the recommended weekly average of 11,100 lbs/day limitation by a statistically derived factor of 1.25. The non-summer monthly average and daily maximum limitations of 17,700 lbs/day and 34,050 lbs/day respectively are being carried forward from the previous licensing action pursuant to anti-backsliding provisions of Department rule (Chapter 523 §5(1) and federal regulation (USC §1342(o)). It is noted the approved TMDL establishes trading ratios for TSS if mills choose to do so.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001 (Final effluent)**

A summary of the BOD limitations in this permitting action is as follows:

	Monthly Average	Weekly Average	Daily Maximum
June 1 – Sept 30	7,400 lbs/day	11,000 lbs/day	13,875 lbs/day
Oct 1 – May 31	17,700 lbs/day	---	34,050 lbs/day

TSS

This permit establishes seasonal monthly average, 60-day average and annual average water quality based limitations for TSS limitations. Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit establishes a ten-year schedule to come into compliance with the final water quality based limitations for TSS. Maine law 38 M.R.S.A. §414(2) *Schedules of Compliance*, authorizes the Department to establish schedules of compliance for water quality based limitations within the terms and conditions of a license. The schedule may include interim and final dates for attainment of specific standards and must be as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to attain those standards.

In enacting revisions to portions of Maine law 38 M.R.S.A., §465 (as amended via P.L. 2005, Chapter 409), the State Legislature found that “*the mitigation of water quality impairments on certain Class C waters requires extraordinary limitations on the discharge of certain pollutants, including phosphorus, that will reasonably necessitate longer than usual time frames for implementation.*”

This permitting action establishes a ten-year schedule of compliance in Special Condition N, *Schedule of Compliance*. Though short-term TSS reductions have traditionally been accomplished through the addition of settling aids to the secondary clarifiers, the permittee must evaluate much more than just settling aids to meet the long term reductions specified in this permitting action. Achieving technologically cost-effective long term TSS reductions as well as other pollutant loading reductions such as total and ortho-phosphorus will entail much broader investigations/evaluations into the mill’s manufacturing processes, spill control plans, a phosphorus mass balance for the mill, pollution prevention and a comprehensive performance evaluation (CPE) of the waste water treatment facility to name a few. Based on the collective list of studies and evaluations listed in Special Condition N of this permit, the Department has deemed a schedule of ten-years to be necessary and is as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to meet some TSS limitations in this permit.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001 (Final effluent)**

The **final** summertime monthly average limit of 12,000 lbs/day is based on a May 1998 Section 401 water quality certification for IP's hydro facilities and is consistent with the Town of Jay's Permit #5. The **final** non-summertime monthly average limitation of 25,000 lbs/day is being carried forward from the previous licensing action pursuant to anti-backsliding provisions of Department rule (Chapter 523 §5(1) and federal regulation (USC §1342(o)).

The **final** summertime 60-day average (June 1 – September 30) limitation of 10,000 lbs/day (effective June 1, 2015) is being established as a TMDL recommended limit to mitigate the adverse affects of settleable solids on the macro-invertebrate community in the Livermore Falls impoundment. An interim limit of 12,000 lbs/day (consistent with the previous licensing action) is in effect upon issuance of the permit and 11,060 lbs/day (negotiated between the Department and the permittee based on past performance) becomes effective June 1, 2010, five years after permit issuance.

The **final** summertime and non-summertime daily maximum limitations of 22,300 lbs/day and 44,600 lbs/day respectively, are based on a May 1998 Section 401 water quality certification for IP's hydro facilities and is consistent with the Town of Jay's Permit #5. These limits are in effect upon issuance of the permit.

The **final** annual average limitation of 14,738 lbs/day is a TMDL recommended limit and is being established to reduce the contribution of sediment oxygen demand to non-compliance in GIP. Interim limits of 17,557 lbs/day and 16,000 lbs/day (negotiated between the Department and the permittee based on past performance) become effective upon permit issuance and June 1, 2010, respectively.

A summary of the TSS limitations in this permitting action are as follows:

	Monthly Avg.	60-Day Avg.	Annual Avg.	Daily Maximum
June 1 – Sept 30				
<i>Upon permit issuance</i>	12,000 lbs/day	12,000 lbs/day	17,557 lbs/day	22,300 lbs/day
<i>Beginning June 1, 2010</i>	12,000 lbs/day	11,060 lbs/day	16,000 lbs/day	22,300 lbs/day
<i>Beginning June 1, 2015</i>	12,000 lbs/day	10,000 lbs/day	14,738 lbs/day	22,300 lbs/day
Oct 1 – May 31				
<i>Upon permit issuance</i>	25,000 lbs/day	N/A	17,557 lbs/day	44,600 lbs/day
<i>Beginning June 1, 2010</i>	25,000 lbs/day	N/A	16,000 lbs/day	44,600 lbs/day
<i>Beginning June 1, 2015</i>	25,000 lbs/day	N/A	14,738 lbs/day	44,600 lbs/day

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance*, states in part, “if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(i) *The time between interim dates shall not exceed 1 year, except that in the case of a schedule for compliance with standards for sewage sludge use and disposal, the time between interim dates shall not exceed six months.*

(ii) *If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.*

Special Condition N, *Schedule of Compliance*, of this permit sets forth interim requirements (in the form of studies/evaluations) and dates for achieving said studies/evaluations pursuant to Chapter 523. In addition, Special Condition N establishes submission of progress reports to the Department every six months for the term of the ten-year schedule.

The final effluent limits for TSS may be changed, consistent with governing statutes and regulations, by subsequent permit modifications or renewals issued by the Department resulting from revisions to the TMDL or other new information. Any such changes must meet anti-backsliding requirements contained in Department rules, Chapter 523, §5(l) and 33 U.S.C. §1342(o).

- f. Temperature: The previous permitting action did not establish any numeric temperature limits. A review of the Discharge Monitoring Report (DMR) data for the period January 1, 2001 through December 2003 indicates the effluent temperature averages 89.1 ° F during the summer period (June 1 – September 30) and 75.6 ° F during the non-summer.

Department Rule Chapter 582, *Regulations Relating To Temperature*, limits thermal discharges to an in-stream temperature increase (ΔT) of 0.5° F above the ambient receiving water temperature when the weekly average temperature of the receiving water is greater than or equal to 66° F or when the daily maximum temperature is greater than or equal to 73° F. The temperature thresholds are based on EPA water quality criterion for the protection of brook trout and Atlantic salmon (both species indigenous to the Androscoggin River). The weekly average temperature of 66° F was derived to protect for normal growth of the brook trout and the daily maximum threshold temperature of 73° F protects for the survival of juveniles and adult Atlantic salmon during the summer

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

months. As a point of clarification, the Department interprets the term "weekly average temperature" to mean a seven (7) day rolling average. To promote consistency, the Department also interprets the ΔT of 0.5°F as a weekly rolling average criterion when the receiving water temperature is $\geq 66^{\circ}\text{F}$ and $< 73^{\circ}\text{F}$. When the receiving water temperature is $\geq 73^{\circ}\text{F}$ compliance with the ΔT of 0.5°F is evaluated on a daily basis.

Maine law, 38 M.R.S.A., §451 states that after adoption of any classification by the Legislature for surface waters or tidal flats or sections thereof, it is unlawful for any person, firm, corporation, municipality, association, partnership, quasi-municipal body, state agency or other legal entity to dispose of any pollutants, either alone or in conjunction with another or others, in such manner as will, after reasonable opportunity for dilution, diffusion or mixture with the receiving waters or heat transfer to the atmosphere, lower the quality of those waters below the minimum requirements of such classifications, or where mixing zones have been established by the department, so lower the quality of those waters outside such zones, notwithstanding any exemptions or licenses which may have been granted or issued under sections 413 to 414-B.

Section 451 also states that, after opportunity for hearing, the Department may establish by order a mixing zone with respect to any discharge for which a license has been issued pursuant to section 414.

Section 451 also states that the purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the Department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the Department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.

To comply with Department rule Chapter 525, the IP mill, at 7Q10 low flow conditions of 1,671 cfs (1,080 MGD) would be limited to a thermal load based on the following calculation:

$$(1,080,000,000 \text{ gal})(0.5^{\circ}\text{F})(8.34) = 4.5 \times 10^9 \text{ BTUs/day}$$

This is the heat load that would theoretically cause the Androscoggin River temperature to increase by 0.5°F (after complete mixing) at a 7Q10 river flow of 1,671 cfs (1,080 MGD).

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

Under the guidance of the Department, IP conducted a thermal survey in the Androscoggin River in 1994 to determine whether after complete mixing of the discharge with the receiving water, if the thermal discharge from the mill is in compliance with the Department Chapter 582 regulation and Section 451 of State law. The report concluded that based on the data collected in the study, complete mixing of the mill effluent with the receiving water (horizontally and vertically) occurs at the USGS gauging station #01055100 (commonly referred to as the Jay Monitoring Station) approximately 3,000 feet downstream of Outfall #001. See Attachment C of this Fact Sheet. Based on the thermal study results, IP concluded, and the Department concurred at the time of the previous licensing action, that the discharge was in compliance with the Department regulation of a ΔT of 0.5°F. It is noted compliance was marginal taking into consideration significant figures. IP has recently expressed concern that due to elevated temperature of the effluent between the 1994 study and the present, due to mill process modification to comply with the Cluster Rule, the discharge may not meet the criteria in the Chapter 582 regulation. IP is concerned that the discharge will periodically not be in compliance with the ΔT of 0.5°F based on theoretical calculations that do not take into consideration diffusion of heat to the atmosphere within the zone of initial dilution (approximately 3,000 feet). IP retained the services of a consulting engineer to model the effect of the mill's thermal discharge on the river. The latest modeling indicates the thermal discharge (after the zone of initial dilution) is in compliance with Chapter 582. To validate the model results, IP has placed temperature monitors in the Androscoggin River above and below the point of discharge to more accurately determine the ΔT in the receiving water. Preliminary data from the instream monitors correlates very well to the impacts predicted by the model but does not correlate very well with the results derived from the theoretical calculations contained in other permits issued by the Department. In an effort to address this discrepancy, Special Condition H, *River Temperature Increase* of this permitting action requires that;

On or before December 31, 2005, the permittee shall submit to the Department for review and approval, a scope of work and schedule for the implementation of a methodology/mechanism to demonstration compliance with Department Rule, Chapter 582, Regulation Relating To Temperature.

On or before June 1, 2006, the permittee shall have the methodology/mechanism in place and/or fully operational to demonstration compliance with Department Rule, Chapter 582, Regulation Relating To Temperature.

The Department will annually review the information collected by the permittee to determine if a thermal load limitation or other monitoring requires are necessary to comply with Department rule found at Chapter 582. In the interim, the Department has determined that a cap on temperature is necessary given the uncertainty surrounding

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

compliance with Chapter 582. Therefore, this permit establishes a daily maximum temperature limitation of 100°F as a best professional judgment of historic discharge temperatures.

- g. pH Range: The previous licensing action established a pH range limit of 5.0 – 9.0 standard units that was based on federal regulation 40 CFR, Part 430. This permitting action is carrying the limit forward and continues to be consistent with the federal NEG's.
- h. Adsorbable organic halogens (AOX): The previous licensing action established a 1/Month monitoring requirement for AOX. This permitting action is establishing monthly average and daily maximum technology based mass limits for AOX based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 0.623 and 0.951 kg/kkg (lbs per 1000 pounds or metric tons) of unbleached pulp production. With a three-year high unbleached kraft production figure of 1,120 tons/day (calendar year 2003) the limits are calculated as follows:

$1,120 \text{ tons/day} \times 0.623 \text{ lbs/1000 lbs} \times 2000 \text{ lbs/ton} = 1,396 \text{ lbs /day}$

$1,120 \text{ tons/day} \times 0.951 \text{ lbs/1000 lbs} \times 2000 \text{ lbs/ton} = 2,130 \text{ lbs /day}$

A review of monthly data provided by the permittee for the period January 2001 to the present indicates the mean monthly average concentration discharged has been 0.249 kg/kkg with a mean monthly mass of 617 #/day. The federal regulations require 1/Day monitoring for AOX on the final outfall. However, given the fact that permittee has demonstrated that the monthly average AOX discharged has only been 44% of the level established in the federal regulation, this permitting action is establishing a monitoring frequency of 3/Week for AOX based on a best professional judgment of the monitoring frequency necessary to determine on-going compliance with the BAT thresholds in the federal regulation.

- i. COD: The previous licensing action did not establish final effluent limitations or monitoring requirements for COD. Federal regulation 40 CFR Part 430, has reserved promulgating of specific final effluent limits for COD. However, IP signed an agreement with EPA in June of 2000, Final Project Agreement, International Paper XL Project that outlined agreed upon effluent limitations for COD to be incorporated into this permitting action. To be consistent with the agreement, this permitting is establishing monthly average and daily maximum mass limitations of 50.7 kg/kkg (rounded to 51 kg/kkg) and 75 kg/kkg respectively, with a monitoring frequency of 1/Day.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

j. Color: For the IP mill, applicable sections of Maine law, 38 M.R.S.A., §414-C states that:

2) Best practicable treatment; color pollution. For the purposes of Section 414-A, Subsection 1, best practicable treatment for color pollution control for discharges of color pollutants from the kraft pulping process is:

A) For discharges licensed and in existence prior to July 1, 1989:

- 1) On July 1, 1998 and until December 31, 2000, 225 pounds or less of color pollutants per [air dried] ton of unbleached pulp produced, measured on a quarterly average basis: and
- 2) On and after January 1, 2001, 150 pounds or less of color pollutants per [air dried] ton of unbleached pulp produced, measured on a quarterly average basis.

A discharge from a kraft mill that is in compliance with this section is exempt from provisions of subsection 3.

- 3) An individual waste discharge may not increase the color of any water body by more than 20 color units. The total increase in color pollution units caused by all dischargers to the water body must be less than 40 color pollution units. This subsection applies to all flows greater than the minimum 30-day low flow that can be expected to occur with a frequency of once in 10 years (30Q10). A discharge that is in compliance with this subsection is exempt from the provisions of subsection 2. Such a discharge may not exceed 175 pounds of color pollutants per [air dried] ton of unbleached pulp produced after January 1, 2001.

The 10/16/98 license modification established two tiers of limits for color. Upon issuance of the modification and lasting through December 31, 2000, a technology based limit of 225 pounds per [air dried] ton of unbleached pulp produced was established and beginning January 1, 2001, the facility was limited to a technology based limit of 150 pounds per [air dried] ton of unbleached pulp.

As with COD, IP's XL agreement with the EPA outlined agreed upon effluent limitations for color to be incorporated into this permitting action. To be consistent with the agreement, this permitting is establishing a calendar quarterly average limitation of 120 lbs/ton of unbleached kraft pulp produced with a monitoring frequency of 3/Week.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

The IP facility is currently in compliance with the best practicable treatment standard of 150 lbs/ton. Since the signing of the XL agreement with the EPA, the IP facility has been discharging between 80 - 110 pounds of color per ton of air dried tons of unbleached pulp produced on a quarterly basis.

- k. Total phosphorus and Ortho-phosphorus – This permitting action is establishing seasonal (June 1 – September 30) monthly average water quality based limitations for total phosphorus and ortho-phosphorus limitations. The final monthly average limits of 130 lbs/day (total P) and 22 lbs/day (ortho-P) are based on the recommendations in the May 2005 final TMDL and were derived based on mass discharge quantities for both parameters for the period May 1 – September 30, 2004. This permitting action establishes a ten-year schedule of compliance with said limits and establishes monthly average interim limits of 193 lbs/day (total P) and 44 lbs/day (ortho-P) upon permit issuance and monthly average limits of 160 lbs/day (total P) and 33 lbs/day (ortho-P) beginning June 1, 2010. The interim limitations were negotiated limits between the Department and permittee. As with TSS, Special Condition N, *Schedule of Compliance*, of this permit sets forth interim requirements (in the form of studies/evaluations) and dates for achieving said studies/evaluations pursuant to Chapter 523.

The permittee has indicated that the final total and ortho phosphorus levels were achieved in the late summer of 2004, but the waste water treatment facility was extremely unstable due to the lack of nutrients to sustain a healthy biological community in the aeration basin. The permittee has indicated that there has been insufficient opportunity at the waste water treatment facility to observe if these nutrients levels are adequate to continuously to sustain a healthy biological community in the aeration basin during summer temperatures. This permitting action also establishes a seasonal (June 1 – September 30) monthly average, weekly average and daily maximum reporting requirement for concentration as well as a monitoring frequency of 3/Week for both parameters to track discharge performance.

At the permittee's written request, the Department may approve another combination of total phosphorus and ortho-phosphorus discharge limits that is equally protective of water quality in the Gulf Island Pond. A written request shall be based on the methods of evaluation used in the TMDL.

As with TSS, this permitting action is establishing a ten-year schedule of compliance for some total phosphorus and ortho-phosphorus limits in this permitting action. The limits for ortho-phosphorus that become effective on June 1, 2015, are likely the most stringent phosphorus limits for a pulp and paper mill in the United States. Achieving technologically cost-effective long term phosphorus reductions will entail much broader investigations/evaluations into the mill's manufacturing processes, spill control plans, a phosphorus mass balance for the mill, pollution prevention and a comprehensive performance evaluation (CPE) of the waste water treatment facility to name a few. Based

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

on the collective list of studies and evaluations listed in Special Condition N of this permit, the Department has deemed a schedule of ten-years to be necessary and is as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to meet some combination of total phosphorus and ortho-phosphorus limitations in this permit.

Maine law 38 M.R.S.A. §465-B(5) (as amended via P.L. 2005, Chapter 409) states:

Water quality modeling. The Department of Environmental Protection shall supervise additional modeling of Gulf Island Pond on the Androscoggin River in order to review and, as appropriate, revise the total maximum daily load for phosphorus.

- 1. The additional modeling must be done under contract to the department and funded by those dischargers seeking additional information on the present total maximum daily load for phosphorus.*
- 2. The additional modeling must be based on ambient data collected under reduced loading conditions to Gulf Island Pond, including model parameters such as sediment oxygen demand, chlorophyll-a concentration at critical conditions and phosphorus assimilation and mineralization rates.*
- 3. The model revisions must be completed by March 15, 2009 and submitted to the Department of Environmental Protection and a 3rd-party peer reviewer for review and evaluation. The 3rd-party peer reviewer must be approved by the joint standing committee of the Legislature having jurisdiction over natural resources matters.*
- 4. The peer reviewer shall submit recommendations on the model revisions and any revised total maximum daily load for phosphorus to the Department of Environmental Protection by June 15, 2009. By September 15, 2009, the department shall publish for review and public comment a revised modeling report and total maximum daily load for phosphorus that is based on the peer reviewer's recommendations.*
- 5. By March 15, 2010, the Department of Environmental Protection shall issue revised licenses, as needed, that are based on the revised and approved total maximum daily load report for phosphorus created as a result of the modeling revisions pursuant to this section.*

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

6. Any reallocation of phosphorus among licensed dischargers contributing to algae blooms in Gulf Island Pond must take into consideration all prior total maximum daily load allocations, license limits and attainment of interim or final phosphorus limits as issued in prior total maximum daily loads or licenses so as not to create inequities in regard to attainment of prior phosphorus limits. The purpose of this subsection is to prevent penalizing dischargers who have attained early compliance with prior license limits or total maximum daily load allocations.

7. Any change in license limits based on a revised and approved total maximum daily load for phosphorus must comply with anti-backsliding requirements contained in state and federal law.

8. The Department of Environmental Protection is not obligated to make revisions to the model or existing approved total maximum daily load if funding is not provided for the additional work described in this section.

9. It is the intent of the Legislature that dischargers shall make continuous progress in actual effluent reductions towards reaching final allocations under the total maximum daily load allocations in existence on the effective date of this section or as revised under this section to March 15, 2010.

The final effluent limits for total phosphorus or ortho-phosphorus may be changed, consistent with governing statutes and regulations, by subsequent permit modifications or renewals issued by the Department resulting from revisions to the TMDL or other new information. Any such changes must meet anti-backsliding requirements contained in Department rules, Chapter 523, §5(1) and 33 U.S.C. §1342(o).

1. Whole Effluent Toxicity (WET) and Chemical Specific Testing – Maine Law, 38 M.R.S.A., Sections 414-A and 420, prohibits the discharge of effluents containing substances in amounts which would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the EPA. Department Rules, 06-096 CMR Chapter 530.5, *Surface Water Toxics Control Program*, set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

WET and chemical specific (priority pollutant) testing, as required by Chapter 530.5, is included in order to fully characterize the effluent. This permit also provides for reconsideration of effluent limits and monitoring schedules after evaluation of toxicity testing results. The monitoring schedule includes consideration of results currently on file, the nature of the waste water, existing treatment and receiving water characteristics.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

WET monitoring is required to assess and protect against impacts upon water quality and designated uses caused by the aggregate effect of the discharge on specific aquatic organisms. Acute and chronic WET tests are performed on invertebrate and vertebrate species. Chemical specific, or "priority pollutant (PP)," testing is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health water quality criteria.

The Department issued a Fact Sheet to IP on 2/1/95 which outlined the WET testing requirements under Department Rule Chapter 530.5, Surface Water Toxics Control Program. The regulation placed the facility in the high frequency category for WET and chemical specific testing as the facility was licensed to discharge greater than 1.0 MGD and the facility discharged industrial process waste waters.

The Department's database for WET and chemical specific test results for IP indicates the facility has fulfilled the WET testing and chemical specific testing as required by Department rule Chapter 530.5. See Attachment D of this Fact Sheet for a summary of the WET test results and Attachment E of this Fact Sheet for a summary of the chemical specific test dates. Department Regulation Chapter 530.5 and Protocol E(1) of a document entitled Maine Department of Environmental Protection, Toxicity Program Implementation Protocols, dated July 1998, states that statistical evaluations shall be periodically performed on the most recent 60 months of WET and chemical specific data for a given facility to determine if water quality based limitations must be included in the permit.

On July 18, 2005, the Department conducted a statistical evaluation on the aforementioned tests results in accordance with the statistical approach outlined in EPA's March 1991 document entitled Technical Support Document (TSD) for Water Quality Based Toxics Control, Chapter 3.3.2 and Maine Department of Environmental Protection Guidance, July 1998, entitled Toxicity Program Implementation Protocols.

WET:

The 7/18/05 statistical evaluation indicates that the discharge from the IP mill does not exceed or have a reasonable potential to exceed the critical ambient water quality threshold of 4.7% (mathematical inverse of the acute and chronic dilution factor of 21.2:1) for any of the species tested to date.

Chapter 530.5 establishes baseline surveillance level WET testing at a frequency of 1/Year. Surveillance level WET testing shall be conducted on the invertebrate species the water flea (*Ceriodaphnia dubia*) and the vertebrate species the fathead minnow (*Pimephales promelas*) in the first four years of the permit. Tests shall be conducted in a different calendar quarter of each year such that a WET test is conducted in all four calendar quarters during the first four years of the permit. Beginning twelve (12) months

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001 (Final Effluent)**

prior to the expiration date of the permit the permittee is required to revert back to a screening level of testing of 1/Quarter for four consecutive calendar quarters. Testing shall be conducted on the invertebrate species the water flea (*Ceriodaphnia dubia*) in all four quarters and on the vertebrate species the fathead minnow (*Pimephales promelas*) in two of the four quarters and the vertebrate species the brook trout (*Salvelinus fontinalis*) in the remaining two of the four calendar quarters.

Chemical Specific

As for chemical specific parameters, the test results in Attachment C of this Fact Sheet indicates the discharge has two test results for aluminum (1,600 ug/L on 3/10/04 and 1,640 ug/L on 10/21/02) that have a reasonable potential to exceed the chronic AWQC. As for the remaining parameters on the chemical specific list, the 7/18/05 statistical evaluation indicates the parameters do not exceed or have a reasonable potential to exceed acute, chronic or human health AWQC.

Chapter 530.5 §C(2) states when a discharge "...contains pollutants at levels that have a reasonable potential to cause or contribute to an ambient excursion in excess of a numeric or narrative water quality criterion, appropriate water quality based limits must be established in the license upon issuance." It is noted that should future test results mathematically eliminate the reasonable potential to exceed AWQC thresholds, this permit will be modified pursuant to Special Condition P to remove the limit(s) and modify monitoring requirements.

Pursuant to Chapter 530.5 §C(2), monthly average limits for aluminum may be calculated as follows:

<u>Parameter</u>	<u>Chronic⁽¹⁾ Criterion</u>	<u>Chronic Dilution Factor</u>	<u>Calculated EOP⁽²⁾ Chronic Concentration</u>	<u>Mon. Avg. Mass Limit</u>
Aluminum	87 ug/L	21.2:1	1,844 ug/L	784 #/Day

Example calculation: Aluminum - $\frac{(1,844 \text{ ug/L})(21.2)(8.34)(51 \text{ MGD})}{1000 \text{ ug/mg}}$ = 784 lbs/day

Footnotes:

1. End of Discharge Pipe calculations.
2. Based on EPA's 1986 ambient water quality criteria (AWQC).

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001 (Final Effluent)**

The TSD recommends that "background" concentrations of toxic pollutants in the receiving water should be used in calculating permit limits for those pollutants. The Department does not have sufficient information at this time to factor in ambient levels of these pollutants in the receiving waters. Therefore a "background" concentration of zero was used.

Concentration limits in this permitting action are based on Department rule Chapter 523, §6(f)(2) which states that pollutants limited in terms of mass additionally may be limited in terms of other units of measurement and the permit shall require the permittee to comply with both limitations. In addition, EPA's Technical Support Document For Water Quality Based Toxics Control, March 1991, Chapter 5, Section 5.7, recommends that permit limits for both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards. As not to penalize the permittee for operating at flows less than the permitted flows, the Department is establishing concentration limits based on a factor of 1.5 as the permittee has consistently discharge at or below 80% of the permit limitation of 51 MGD. Therefore, concentration limits for the parameters of concern in this permitting action have been calculated to be:

<u>Parameter</u>	<u>Calculated EOP Concentration</u>	<u>Monthly Avg. Concentration Limit</u>
Aluminum	1,844 ug/L	2,766 ug/L

In the event future statistical evaluations demonstrate that the reasonable potential to exceed AWQC or the result(s) in question falls outside the 60-month evaluation period, this permit may be reopened pursuant to Special Condition **P** of this permit to remove the limitation(s) and or reduce the monitoring requirement(s).

This permitting action is establishing the monitoring requirement frequencies for the parameters that exceed or have a reasonable to exceed AWQC based on a best professional judgment given the timing, frequency and severity of the exceedence or reasonable potential to exceed AWQC. A more in-depth review of the tests results for aluminum in Attachment C of this Fact Sheet indicate that the 10/21/02 and 3/10/04 test results are two of the four most current test result for aluminum on file. Therefore, the Department has made a best professional judgment to establish a monitoring frequency of 1/Quarter for aluminum in this permitting action.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final Effluent)

As for the remaining parameters on the chemical specific list, the 7/18/05 statistical evaluation indicates the parameters do not exceed or have a reasonable potential to exceed acute, chronic or human health AWQC. As with WET testing, Chapter 530.5 establishes surveillance level testing and screening level testing for chemical specific testing. Therefore, this permitting action establishes a surveillance level of testing of 1/Year upon issuance of the permit and a screening level of testing of 1/Quarter for four consecutive quarters beginning 12 months prior to the expiration date of the permit.

m. Mercury

Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee thereby administratively modifying WDL # W000632-44-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 15.8 parts per trillion (ppt) and 23.7 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury. The interim mercury limits were scheduled to expire on October 1, 2001. However, effective June 15, 2001, the Maine Legislature enacted Maine law, 38 M.R.S.A. §413, sub-§11 specifying that interim mercury limits and monitoring requirements remain in effect. It is noted that the mercury effluent limitations have not been incorporated into Special Condition A, *Effluent Limitations And Monitoring Requirements*, of this permit as the limits and monitoring frequencies are regulated separately through Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. The interim mercury limits remain in effect and enforceable and modifications to the limits and/or monitoring frequencies will be formalized outside of this permitting document pursuant to Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. It is noted IP's test results for calendar year 2004 range from 1 ng/L – 6 ng/L.

In accordance with federal regulation 40 CFR Part 430, this permitting action is establishing limitations and monitoring requirements for an internal point sources, Bleach Plant A and Bleach Plant B filtrate effluents.

- n. Flow: The previous licensing action established a monthly average reporting requirement for flow from the bleach plants. The license required estimating the flow when sampling for pollutants as the licensee demonstrated at that time that installing continuous flow measurement was disproportionate to EPA's cost estimates proposed in the federal regulation due to the age of mill, and the configuration of the bleach plant sewers. This permitting action is carrying forward the monthly average reporting requirement and establishing a daily maximum reporting requirement along with estimating the flow when sampling for pollutants based on daily pulp production figures.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach Plant) and Outfall #200 (Bleach Plant B)

- o. 2,3,7,8-TCDD (Dioxin): The previous licensing action established a daily maximum concentration limit of <10 ppq (pg/L) with a monitoring frequency of 2/Quarter for dioxin based on Maine law, 38 M.R.S.A., §420. The limit of 10 pg/L is also the ML (Minimum Level - the level at which the analytical system gives recognizable signals and an acceptable calibration point) for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes the same limitation and is therefore being carried forward in this permitting action.
- p. 2,3,7,8 TCDF (Furan): The previous licensing action established two tiers of daily maximum concentration limits for furan. The license established a limit of <100 ppq (pg/L) through December 31, 1999 and then was reduced to <10 ppq (pg/L) beginning January 1, 2000, based on Maine law, 38 M.R.S.A., §420. The monitoring frequency was established at 2/Quarter like dioxin. The limit of 10 pg/L is also the ML for furan for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes a daily maximum concentration limit of 31.9 pg/L. Being that Maine law is more stringent, the limit of <10 pg/L is being carried forward in this permitting action.

Federal regulation 40 CFR Part 430 does authorize the permitting authority to modify the monitoring frequency for dioxin and furans after five years of monitoring data (60 data points) for dioxin and furan has been collected. IP has been monitoring the bleach plant effluent for dioxin and furan since 1997 and has more than 60 data points. The data collected to date indicates dioxin and furan levels **have been** less than the respective MLs of 10 ppq since the transition to the elimination of elemental chlorine from the bleaching process was completed in late 1996. Therefore, the Department is modifying the 1/Month monitoring requirement by establishing a monitoring requirement of 1/Year for dioxin and furan. In lieu of the 1/Month monitoring requirement, Special Condition J, *Dioxin/Furan Certification*, of this permit requires the permittee to submit an annual certification indicating the bleaching process has not changed from previous practices and therefore the formation of dioxin/furan compounds is highly unlikely.

It is noted, Maine law 38 M.R.S.A., §420(2)(I)(3) states that - *After December 31, 2002, a mill may not discharge dioxin into its receiving waters. For purposes of this subparagraph, a mill is considered to have discharged dioxin into its receiving waters if 2, 3, 7, 8 - tetrachlorodibenzo-p-dioxin or 2, 3, 7, 8 - tetrachlorodibenzo-p-furan is detected in any of the mill's internal waste streams of its bleach plant and in a confirmatory sample at levels exceeding 10 picograms per liter, unless the Department adopts a lower detection level by rule, which is a routine technical rule pursuant to Title 5, chapter 375, subchapter II-A, or a lower detection level by incorporation of a method in use by the United States Environmental Protection Agency, or if levels of dioxin, as defined in section 420-A, subsection 1 detected in fish tissue sampled below the mill's wastewater outfall are higher than levels in fish tissue sampled at an upstream reference site not affected by the mill's discharge or on the basis of a comparable surrogate procedure acceptable to the commissioner. The commissioner shall consult*

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach Plant) and Outfall #200 (Bleach Plant B)

with the technical advisory group established in section 420-B, subsection 1, paragraph B, subparagraph (5) in making this determination and in evaluating surrogate procedures. The fish-tissue sampling test must be performed with differences between the average concentrations of dioxin in the fish samples taken upstream and downstream from the mill measured with at least 95% statistical confidence. If the mill fails to meet the fish-tissue sampling-result requirements in this subparagraph and does not demonstrate by December 31, 2003 to the commissioner's satisfaction that its wastewater discharge is not the source of elevated dioxin concentrations in fish below the mill, then the commissioner may pursue any remedy authorized by law.

The previous licensing action required the IP mill to participate in the Dioxin Monitoring Program specified in Maine law 38 M.R.S.A., 420-A(2). On May 3, 2005, the Department presented a report to the Natural Resources Committee of the Maine Legislature reporting on the status of each mill regarding the “above/below” test. In the report, the Department has made the determination based on dioxin levels in the fish tissue from fish results collected to date above and below the IP mill, though detectable, were not statistically different. As a result, the Department made the determination that the IP is in compliance with Maine law 38 M.R.S.A., §420(2)(I)(3). Therefore, IP has been granted a reduction in the monitoring frequency for dioxin and furans at the end of the bleach plant.

It is noted that the permittee is required to continue to participate in the State’s Dioxin Monitoring Program as required by Special Condition O, *Dioxin Monitoring Program*, of this permitting action. The permittee is required to participate in the program due to the fact though there is no statistical difference in the dioxin levels in fish tissue in the fish collected upstream and downstream of the mill, there remains detectable quantities of dioxin in the fish tissue. Continued participation in the program will assist the Department in documenting trends up or down from current levels.

- q. Twelve Chlorophenolics: The previous licensing did not establish limitations or monitoring requirements for the chlorophenolic compounds specified in this permitting action. Federal regulation 40 CFR Part 430 establishes said parameters and limitations. The technology based limitations vary from 2.5 ug/L to 5.0 ug/L and are equivalent to the ML for each parameter using EPA Method 1653. A 1/Month monitoring requirement has also been established based on the federal regulation.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach Plant) and Outfall #200 (Bleach Plant B)

- r. Chloroform: The previous licensing action did not establish limitations or monitoring requirements for chloroform. This permitting action is establishing monthly average and daily maximum mass limits for chloroform based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 4.14 and 6.92 g/kg of unbleached pulp production. With a historic unbleached kraft pulp production of 1,120 tons/day the limits are calculated as follows:

$$1,120 \text{ tons/day} \times 4.14 \text{ g/kg} \times 0.907 \text{ kkg/ton} \times 1.0 \text{ lbs/454g} = 9.3 \text{ lbs/day}$$

$$1,120 \text{ tons/day} \times 6.92 \text{ g/kg} \times 0.907 \text{ kkg/ton} \times 1.0 \text{ lbs/454g} = 15.5 \text{ lbs/day}$$

The monthly average and daily maximum limitations of 9.3 lbs/day and 15.5 lbs/day are limits for Bleach Plants A & B collectively. A monitoring requirement of 1/Week has been established based the federal regulation.

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM

In 1989, the Department proposed a partial resolution of the summertime dissolved oxygen deficit at GIP through the development of draft permits/licenses for Boise Cascade (BC) (formerly MeadWestvaco and now RPC) and International Paper (IP) requiring somewhat more stringent summer limits than the prior year round permit/license limits, although the new summer limits would not necessarily require production process changes and/or construction of additional treatment facilities. Between November 1990 and January 1991, the State of Maine, BC and IP executed Consent Agreements requiring those companies to build and operate an oxygen injection facility at River Mile (RM) 31.4 on the Androscoggin River approximately 5 miles above the GIP dam. The Consent Agreement required the system to be in place and operational by June 1, 1992. As a minimum, 27,000 lb/day of oxygen would be injected continuously during the period July 1 through September 30 each year.

In addition to BC and IP, Central Maine Power Company [now Florida Power Light & Energy (FPLE)] and James River (now Fraser Paper NH LLC) in Berlin/Gorham, N.H. were parties to the construction of the oxygenation project and are presently responsible parties in the operation and maintenance of the system. These four entities have formed a partnership and have signed a contractual agreement amongst themselves outlining the responsibilities of each party. To date, the consent agreement conditions have been met and the system has operated as designed.

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)

In June of 1999, the Department modified the licenses for MeadWestvaco and IP by establishing a “sliding scale” for oxygen injection as a function of both river flow and ambient river flow temperature. This modification was necessary as a seasonal (July 1 – September 30) steady state injection of 73,000 lbs/day of oxygen into the river (regardless of river flow or river temperature) resulted in oxygen being wasted when the river flow was high and or the ambient river temperature was low and a not enough oxygen being injected when the river flow was low and or the ambient river temperatures were high.

Based on the May 2005 final TMDL, the Department has determined that as a default, a steady state injection of 105,000 pounds per day of oxygen is required (assuming a 33% transfer efficiency) at two locations in Gulf Island Pond; one at Upper Narrows (location of the existing oxygenation system) and one at Lower Narrows, approximately 3 miles downstream of the Upper Narrows system. The Lower Narrows location is important as the water depth is deeper than the Upper Narrows site. An oxygenation system located deeper in the pond and closer to the area of sub-standard ambient dissolved oxygen will provide an opportunity for oxygen injection system to more effective in improved ambient dissolved oxygen levels.

To date, the Department has not received a proposal from the permittee and/or other parties to collectively design and construct a new system at Lower Narrows and or modify the existing oxygenation system to satisfy the TMDL's default oxygenation injection at Upper Narrows recommendations. Therefore, the Department established oxygen injection requirements for each entity via the MEPDES, NPDES permits and the Section 401 Water Quality Certification taking into consideration individual mill's impact on dissolved oxygen depletion based on loadings of phosphorus, BOD and TSS to GIP, and the dam's effect on dissolved oxygen as well as individual's contractual obligations for the existing oxygenation system at Upper Narrows.

It is the Department's understanding at the time of this permitting action, the contractual agreement for the operation and maintenance of the existing oxygenation system at Upper Narrows is as follows: FPLE 14%, Fraser 10%, RPC 38% and IP 38%. Based on collective loadings of phosphorus, BOD and TSS that are representative of current discharges levels and assimilation rates for each parameter, the Department has determined the individual percentages of pollutant loading to GIP are Fraser 20.13%, RPC, 32.64% and IP 47.23%.

The May 2005 final TMDL indicates with zero discharge from the pulp and paper mills, oxygen injection is still required due to dissolved oxygen deficiencies caused by sediment oxygen as a result of the presence of the Gulf Island Dam. Modeling for the TMDL indicates that to offset this dissolved oxygen deficiency, FPLE would be required to inject 105,000 lbs/day of oxygen at Upper Narrows (present system) or inject 65,000 lbs/day of oxygen at Lower Narrows. Therefore, only 0.619 lbs of oxygen is required at Lower Narrows for every 1.0 lb of oxygen at Upper Narrows ($65,000/105,000 = 0.619$).

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)

In an effort to distribute oxygen injection based on loadings to GIP, (at the same time recognizing parties contractual obligations), the Department has assigned oxygen requirements for each entity based on collectively injecting the TMDL's default allocation 105,000 lbs/day at Upper Narrows and 105,000 lbs/day at Lower Narrows. The oxygen injection requirements for each entity were derived as follows:

Upper Narrows:

Allocation by contractual obligation

FPLE (14%)	$105,000 \text{ lbs} (0.14) = 14,700 \text{ lbs}$
Fraser (10%)	$105,000 \text{ lbs} (0.10) = 10,500 \text{ lbs}$
RPC (38%)	$105,000 \text{ lbs} (0.38) = 39,900 \text{ lbs}$
IP (38%)	$105,000 \text{ lbs} (0.38) = 39,900 \text{ lbs}$

Allocation by percent pollutant loading to GIP

FPLE fixed at 14,700 lbs $\Rightarrow 105,000 \text{ lbs} - 14,700 \text{ lbs} = 90,300 \text{ lbs}$ to be split between mills.

Fraser (20.17%)	$90,300 \text{ lbs} (0.2017) = 18,177 \text{ lbs}$
RPC (32.64%)	$90,300 \text{ lbs} (0.3264) = 29,474 \text{ lbs}$
IP (47.23%)	$90,300 \text{ lbs} (0.4723) = 42,648 \text{ lbs}$

Difference between contractual and percent pollutant loading

FPLE fixed at 14,700 lbs

Fraser	$10,500 \text{ lbs} - 18,177 \text{ lbs} = (7,677 \text{ lbs})$
RPC	$39,900 \text{ lbs} - 29,474 \text{ lbs} = 10,426 \text{ lbs}$
IP	$39,900 \text{ lbs} - 42,648 \text{ lbs} = (2,748 \text{ lbs})$

Based on the figures above, IP as well as Fraser are contractually over-under -compensating for their pollutant loading to GIP and Fraser and RPC is contractually under over -compensating for their pollutant loading to GIP.

Lower Narrows

Being that FPLE would be responsible for 105,000 lbs of oxygen injection at Upper Narrows with the mills at zero discharge and is contractually only contributing 14% to the Upper Narrows, the Department has assigned the remaining portion of that obligation at Lower Narrows. It is noted that only 0.619 lbs of oxygen is required at Lower Narrows for every 1.0 lb of oxygen at Upper Narrows.

FPLE's responsibility at Lower Narrows: $(105,000 \text{ lbs} - 14,700 \text{ lbs})(0.619) = 55,900 \text{ lbs}$.
 $105,000 \text{ lbs} - 55,900 \text{ lbs} = 49,100 \text{ lbs}$ to be allocated between the mills.

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)Allocation for the three mills based on pollutant loading to GIP

FPLE fixed at 55,900 lbs

Fraser 49,100 lbs (0.2017) = 9,884 lbs

RPC 49,100 lbs (0.3264) = 16,026 lbs

IP 49,100 lbs (0.4723) = 23,190 lbs

Re-allocation for the three mills considering over or under compensation at Upper Narrows

FPLE fixed at 55,900 lbs

Fraser 9,884 lbs + 7,677(0.619) lbs = 14,636 lbs

RPC 16,026 lbs – 10,426(0.619) lbs = 9,570 lbs

IP 23,190 lbs + 2,748(0.619) lbs = 24,891 lbs

Re-allocation expressed as a percentage of the total of 105,000 lbs

FPLE 55,900 lbs/105,000 lbs = 53.2%

Fraser 14,636 lbs/105,000 lbs = 13.9%

RPC 9,570 lbs/105,000 lbs = 9.1%

IP 24,891 lbs/105,000 lbs = 23.8%

Summary of Oxygen Injection

A summary of oxygen injection requirements (assuming the TMDL default allocation of 105,000 lbs/day at Upper Narrows and 105,000 lbs/day at Lower Narrows) based on pollutant loading to GIP, compensation for existing oxygen injection at Upper Narrows to offset pollutant loading to GIP and the existing contractual obligation of the partnership for the existing system at Upper Narrows is as follows:

Upper Narrows

FPLE 14,700 lbs

Fraser 10,500 lbs

RPC 39,900 lbs

IP 39,900 lbs

Lower Narrows

FPLE 55,900 lbs

Fraser 14,636 lbs

RPC 9,570 lbs

IP 24,891 lbs

Special Condition K, *Gulf Island Pond Oxygen Injection Requirements*, of this permit also provides IP with a mechanism to individually or in conjunction with other parties, propose an alternate oxygen injection system(s) that satisfies the oxygen injection requirements as recommended in the May 2005 final TMDL.

7. AMBIENT WATER QUALITY MONITORING

There is some uncertainty in water quality modeling and the assignment of various parameter rates. In addition, there is uncertainty involved in the determination of the water quality target of chlorophyll-a levels used to describe the threshold level of an algae bloom. The goal of establishing the water quality threshold goal using 2004 water quality data was difficult as critical conditions of low flow and high water temperatures were not reached. As such, additional ambient monitoring of the pond will likely add confidence to the estimate of the

7. AMBIENT WATER QUALITY MONITORING

present chlorophyll-a threshold. For this reason, it is recommended that the TMDL be implemented in phases of two or three step reductions with required ambient monitoring for point sources in cooperation with the Department.

As previously stated in Section 5(k) *Total phosphorus and Ortho-phosphorus*, of this Fact Sheet, Maine law 38 M.R.S.A. §465-B(5) (as amended via P.L. 2005, Chapter 409) states in part, “*The additional modeling must be based on ambient data collected under reduced loading conditions to Gulf Island Pond, including model parameters such as sediment oxygen demand, chlorophyll-a concentration at critical conditions and phosphorus assimilation and mineralization rates.*” In addition, the law states, “*By March 15, 2010, the Department of Environmental Protection shall issue revised licenses, as needed, that are based on the revised and approved total maximum daily load report for phosphorus created as a result of the modeling revisions pursuant to this section.*”

Therefore, Special Condition M, *Ambient Water Quality Monitoring*, of this permitting action requires the permittee to participate in annual monitoring of five sampling stations in Gulf Island Pond to gather additional ambient data for future modeling.

8. BEST MANAGEMENT PRACTICES PLAN

Best Management Practices (BMPs) are specified at 40 CFR 430.03(d). The primary objective of the Best Management Practices is to prevent leaks and spills of spent pulping liquors, soap, and turpentine. The secondary objective is to contain, collect, and recover at the immediate process area, or otherwise control, those leaks, spills, and intentional diversions of spent pulping liquor, soap and turpentine that do occur. Toward those objectives, the permittee must implement the Best Management Practices (BMPs) specified in 40 CFR 430.03 (c). However, for IP, the XL project approved by the EPA relieves the IP facility of the obligation to implement the specific BMP recommendations in the rule as BMPs will be self implementing via the acceptance of more stringent color limitations than State law provides for and the acceptance of a stringent COD limitation.

9. BIOLOGICAL MONITORING PROGRAM

Special Condition L, *Biological Monitoring Program*, of this permit requires the permittee to monitor bald eagles within 25 miles of the IP mill. Other fish eating birds including, but not limited to, ospreys, great blue herons and common loons may be sampled as surrogates for dead young, sub-adult or adult eagles or non-viable bald eagle eggs. State and federal agencies with jurisdiction over fish and wildlife submitted comments to the Department pursuant to Department Rule Chapter 523, Waste Discharge License Conditions, requesting additional information regarding eagles and other fish-eating birds in the vicinity of pulp and paper mills.

10. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted (based in part on the recommendations in May 2005 final TMDL), the Department has determined the existing water uses will be maintained and protected and anticipates additional improvements in water quality after implementation of water quality based limits herein that will result in the discharge not causing or contributing to the failure of the Androscoggin River to meet standards of its assigned Class C classification.

11. PUBLIC COMMENTS

Public notice of this application was made in the Lewiston Sun Journal newspaper on or about December 17, 1998. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

12. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from and written comments should be sent to:

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Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017
E-mail: gregg.wood@maine.gov

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13. RESPONSE TO COMMENTS

Reserved